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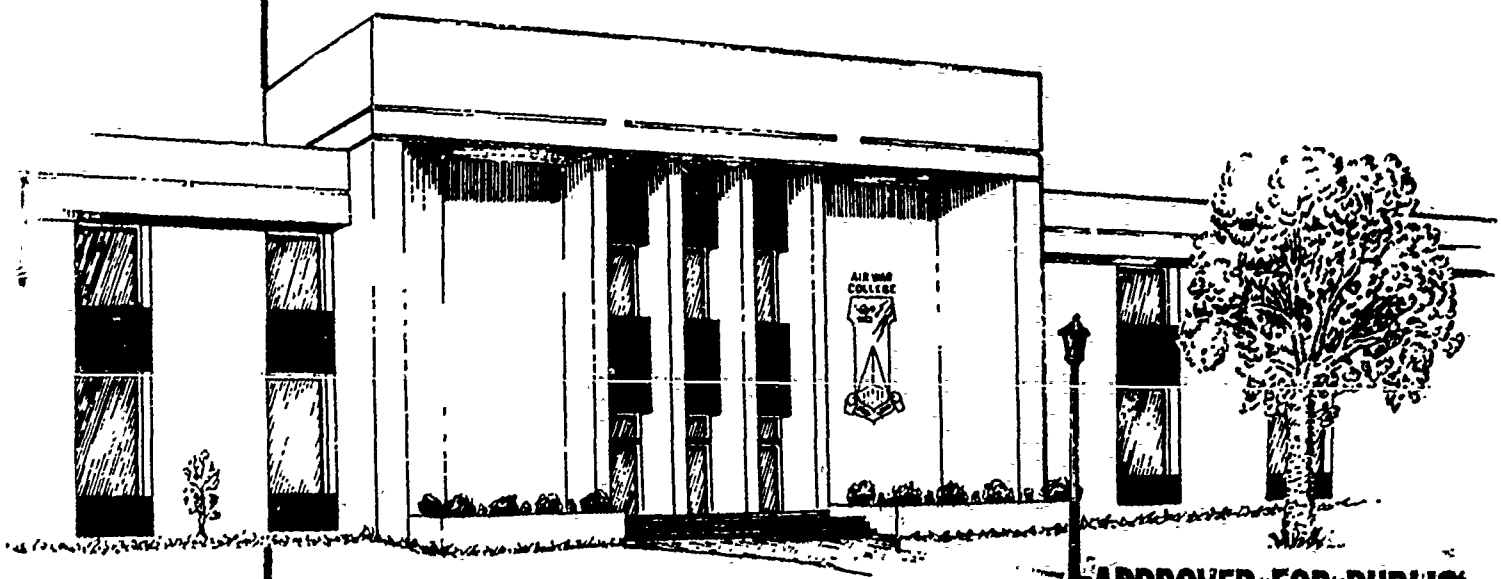
AIR WAR COLLEGE

RESEARCH REPORT

AIR INTELLIGENCE AND THE SEARCH FOR THE CENTER OF GRAVITY

LT COL CHARLES N. CULBERTSON

1988



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AIR INTELLIGENCE AND THE SEARCH FOR THE CENTER OF GRAVITY

by

Charles N. Culbertson

Lieutenant Colonel, USAF

A RESEARCH REPORT SUBMITTED TO THE FACULTY

IN

FULFILLMENT OF THE RESEARCH

REQUIREMENT

Research Advisor: Colonel Donald Panzenhagen

Maxwell Air Force Base, Alabama

April 1988

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AIR WAR COLLEGE RESEARCH REPORT ABSTRACT

TITLE: Air Intelligence and the Search For The Center of Gravity

AUTHOR: Charles N. Culbertson, Lieutenant Colonel, USAF

Carl Von Clausewitz, the great military strategist, suggests that the most important strategic task is definition of an enemy's center of gravity for attack. United States Air Force war planners have generally established reasonable broad center of gravity objectives for air attack. However, historically, USAF Air Intelligence has not been successful in tracing these broad objectives to a precise center of gravity for decisive air attack. This failure was caused by the lack of a coherent air intelligence doctrine which in turn led to the institutionalization of a flawed organizational architecture and poor personnel and training policies. This paper provides an exhaustive review of these difficulties and offers a point of departure for establishment of a coherent doctrine to rectify this historical problem.

BIOGRAPHICAL SKETCH

Lieutenant Colonel Charles N. Culbertson (M.B.A., The George Washington University) is a career intelligence officer. He has served in staff and supervisory positions in a variety of intelligence assignments, including tours in The Kingdom of Laos, Washington D.C., and the Federal Republic of Germany. Lieutenant Colonel Culbertson holds the Bronze Star.

He is a graduate of the Air Force Squadron Officer School, Air Command and Staff College, and the Air War College Class of 1988.

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CHAPTER I -- INTRODUCTION

The great military strategist, Carl Von Clausewitz in his landmark study On War says the first task "in planning for war is to identify the enemy's centers of gravity and if possible trace them back to a single one."(1:619) America's Air Forces have been notably unsuccessful in accomplishing this first task of warfare. As a consequence in World War II (WWII), Korea and Vietnam air power failed to live up to its tremendous technological promise.

The Air Force has developed most of the necessary ingredients for success; a coherent air power doctrine, a concomitant broad air strategy in each war it has fought, and the mightest air armadas ever assembled; capable of striking with terrible power on pinpoint locations. But the lack of a "tracing mechanism" -- a robust air intelligence system -- to find the enemy's center of gravity has prevented the Air Force from honing it's air strategy to a fine point. As a result it has not decisively aimed it's tremendous striking power at lucrative targets in the enemy's center of gravity.

Today the United States Air Force (USAF) is easily the strongest in the world. However without an equally capable air intelligence system it isn't likely to fare any better than its predecessors in attacking potential enemy centers of gravity. This paper will examine the three root

causes of the air intelligence failure.

1. LACK OF A COHERENT ORGANIZATIONAL ARCHITECTURE

2. FLAWED PERSONNEL AND TRAINING POLICIES

3. LACK OF A COHERENT DOCTRINE

This examination will be conducted within the historical context of WWII, the Postwar period, Korea and Viet Nam. Particular attention will be paid to WWII since (sadly) the conditions created in that war still exist to a large extent. The paper will conclude with a doctrinal prescription for fixing long standing air intelligence problems in light of the challenges it faces today.

CHAPTER I NOTES

1. Von Clausewitz, Carl. On War. Princeton: Princeton Universtiy Press. 1976

CHAPTER II -- THE AIR INTELLIGENCE EXPERIENCE IN WORLD WAR II

In 1943/44 the United States Army Air Force's (AAF) in Europe were akin to a sleek young heavyweight fighter -- tightly muscled, confident, and growing in strength with every round. The AAF's opponent, the German Air Force and it's supporting war economy, on the other hand, grew weary with each ensuing American blow, but it still had the potential to land devastating, possibly fatal counter punches. The mighty young American continued to pound the German foe for round after round with precision blows, first concentrating on it's ballbearing industry, then it's transportation network, remarkably never attempting to land a blow on its vulnerable glass jaw -- oil. The American's couldn't find this key vulnerability in the Germany's military-industrial system because it had no air intelligence apparatus in place to perform the task. So it continued to probe for a fatal chink in the German armor while dodging several near fatal blows itself.

The failure stemmed from the fact that the AAF, and it's pre-World War II (WWII) predecessors - the Air Service and the Air Corps - had not developed an air intelligence apparatus capable of "tracing" an enemy's key vulnerabilities or center of gravity. Thus when the AAF faced its supreme challenge over the skies of Europe it found itself incapable

of delivering the long promised air power knock out blow. The Americans could not prosecute their strategy of "fatally weakening" Germany through strategic bombardment because they simply didn't know what Berlin's fatal center of gravity was.

In 1943 air intelligence was in its infancy. It lacked a coherent organizational architecture, quality personnel with the training necessary to develop center of gravity targets, and an intelligence doctrine specifically designed to support air power. As a consequence it wasn't until midway in 1944 just prior to the costly and risky Overlord invasion that the USSTAF began to strike center of gravity targets in Germany.

THE CENTER OF GRAVITY: DOCTRINE AND STRATEGY

In chapter nine of On War Von Clausewitz repeatedly stresses the need to trace "enemy strength back to the fewest possible sources, and ideally to one alone."(1:617) He calls this his "first principle", his "first task", and his "precept of all precepts."(1:634) Von Clausewitz leaves a lasting impression that the determination of an enemy's center of gravity is the most important initial task of the strategist.

Giulio Douhet, the prominent interwar air strategist, put this concept into air power terms when he said "....the selection of objectives .... is the most difficult and delicate task in aerial warfare, constituting what may be

defined as aerial strategy."(2:50) He went so far as to say that it is ".... in choosing enemy targets, that future commanders of independent air forces will show their ability."(2:60)

During the 1930's the future air commanders in the Air Corps' primary doctrinal think tank, The Air Corps Tactical School, at Maxwell Field, took this injunction to heart. They developed a broad targeting concept of attacking "bottlenecks" in the enemy's industrial base.(3:634) This bottleneck concept meshed nicely with the technorapture the airmen were feeling for the heavy bomber.

Center of gravity bottlenecks continued to be the focus of the pre and intrawar plans of the Air Corps and her overseas allies. These plans had the consistent strategic goal of destroying the German capability to make war through strategic bombardment of it's industrial base. AWPD-1 the first Air Corps war plan called for ".... a sustained and unremiting air offensive .... to destroy the will and capability of Germany to continue the war."(4:91) AWPD-42 the second air war plan had the objective of ".... undermining and destroying the capability and will of Germany to wage war by destroying the war-supporting industries ...."(4:102) Finally the 1943 Casablanca Directive outlined an allied Combined Bomber Of nsive (CBO) strategy that was intended: "To bring about the progressive destruction and dislocation of the German military, industrial, and economic

system, -- to a point where their capacity for armed resistance is fatally weakened."(4:153) Each plan followed Clausewitz's dictum even further by narrowing down the broad center of industrial/economic gravity to a prioritized list of specific centers of gravity.

It is exactly at this point -- in the selection of center of gravity bottlenecks -- that a robust air intelligence and targeting apparatus was required to provide a firm evidential base for determination of priorities. It is revealing that it is at this point that AAF and allied strategy began to falter. The first priority in all of the plans -- the aircraft industry -- and the second priority in AWPD-1 and the CBO plan -- submarine building yards and bases -- are hardly decisive centers of gravity. They reflect a defensive strategy. Even the less expedient targets on the lists that can be construed as bottlenecks, bounced around in order of priority on each plan, reflecting an uncertainty about what was important. The electric power system and ball bearings for example came and went without any solid intelligence to either drive them up or down in priority. The tracing and targeting process that Clausewitz and Douhet describe as necessary for selection of a center of gravity simply didn't appear to occur in any meaningful way.

THE FAILURE OF AIR INTELLIGENCE TO FIND THE CENTER OF GRAVITY

Albert Speer, Hitler's Minister of Armaments and

Production, tells us that Germany did have decisive centers of gravity (oil being particularly susceptible) that were vulnerable to strategic air attack -- if they could have been identified through solid air intelligence. In fact Adolf Hitler told Speer: "In my view the fuel plants represent a particularly sensitive point for conduct of the war, since vital materials for the war are being manufactured in a small number of plants."(7:348) But as Speer said: " ... the enemy has always demonstrated a lack of consistency, he switched from target to target ...."(7:347) In a conversation with Speer after the war General Ira Eaker, the former commander of the 8th Air Force (8 AF was the AAF's primary strategic striking arm in Britain) points out a major cause for this inconsistency, "If I had had a more acccurate (intelligence) estimate of your problem, it would have improved our chances of accomplishing our mission."(8:161)

The United States Strategic Bombing Survey (USSBS), a comprehensive postwar study of the effectiveness of strategic bombardment, also tells us there were decisive centers of gravity (oil again was stressed (5:73)). <u>If intelligence had been developed</u>. But as the authors of the USSBS point out, "The importance of careful selection of targets is emphasized by the German Experience." They go on to say; "In the field of strategic (air) intelligence there was an important need for further and more accurate information, especially before and during the early phases of the war. The information on

the German economy ... was inadequate. And there was no established machinery for coordination between military and other governmental and private organizations."(6:112&113).

FLAWED INTELLIGENCE ARCHITECTURE IN WASHINGTON

The USSBS makes it clear that the lack of a robust air intelligence machinery plagued the AAF for the entire war. However, air intelligence was not an entirely new discipline prior to the war. As early as World War I (WWI) there was a functioning office of air intelligence with the General Headquarters (Hq), Allied Expeditionary Forces known as G-2, A-7.(9:1) In fact one of A-7's key responsibilities was targeting. For example it performed "a thorough study ... of railway systems ... with a view of cutting off or delaying supplies for enemy troops.(9:6)" In addition to this interdiction study, strategic targets, such as "steel and munitions plants" were looked at.(9:5-8)

Unfortunately this hard won targeting experience was lost in the interwar period. It appears that while the various air force organizations (the Air Service, Air Corps, and AAF) instinctively understood Douhet's dictum that targeting is the ultimate aim of air force strategy, they forgot that coherent target development is born out of an air intelligence organization that has made targeting its highest priority. Instead intelligence collection and analysis became ends in themselves rather than a means to the ultimate

end of target development.

Even the collection and analysis disciplines were allowed to wane between the wars. In fact the newly formed post-WWI Air Service didn't have an organization that had a pure intelligence mission. Instead it had an Information Group which basically served as a clearing house for aeronautical information.(10:1) It was not until 1925, when the Air Service was renamed the Air Corps, that an Intelligence Section was created within the Information Division.(11:1) However it was seriously understaffed. Even by 1930 the entire Information Division consisted of only four officers and 24 civilians.(12:41,46) As late as 1938 the Intelligence Section only had one officer. In a 1938 report to General "Hap" Arnold, Chief of the Air Corps, Mr John J. Idle, an aeronautical expert reported that "Because of a shortage of personnel the Air Corps was missing existing opportunities for collecting air intelligence information."(13:15)

In 1939 the Air Corps began to realize that it had an air intelligence problem. An April lecture to the Air Corps Tactical School higlighted the difficulties, "An analysis of the national structure of a potential enemy nation" is required.(14:1-5) The lecture indicated that the Air Corps must consider "... measures which exist and those that must be instituted in time of peace (of which there were only four months left in Europe) to secure the information which will

enable the war department to determine the proper influence of air strategy and the specific data necessary to develop objective folders which are necessary to secure the maximum results from targets."(14:1-5) While this lecture clearly placed a heavy emphasis on the collection of data it also raised for the first time in the modern Air Corps the importance of target analysis and the creation of target objective folders.

Four months later (then) Lieutenant Colonel Carl "Tooey" Spaatz, Chief of the Air Corps Plans Section, picked up on the theme of the Tactical School lecture. He wrote to General "Hap" Arnold, Chief of the Air Corps, that sufficient intelligence data was "not being maintained ready for issue in the Office of the Chief of the Air Corps or elsewhere."(15:1)

General Arnold took Spaatz's warning to heart and (one week before Hitler unleashed the blitz on Poland) he convened an Air Corps board to determine the "nature, scope and form of intelligence required for air operations."(16:1) This board conducted the most comprehensive study of air intelligence requirements to the date. It found that the Air Corps needed intelligence in three broad categories; "(1) strategic planning and revision to basic war plans (2) technical planning for aircraft production and (3) tactics planning and plans execution."(16:3) The board advocated that the Air Corps establish an air intelligence organization

responsible for supporting the Office of the Chief of the Air Corps. Basically the board had come to the jolting conclusion that the new aerial weapon required a new type of intelligence organization.(16:1-5)

The report resulted in the establishment of an Intelligence Directorate in Hq Air Corps. It also set off a prolonged and bitter dispute between the Army War Department General Staff, Military Intelligence Division and the Air Corps concerning delineation of intelligence responsibility. The dispute lasted throughout the prewar, intrawar, and even into the postwar period. It effectively hobbled air intelligence in its growth and had a profoundly negative impact on the AAF search for the center of gravity.

This running battle was punctuated by repeated instances of intraservice warfare. However, an acriminous exchange of letters that took place near the end of the war perhaps best illustrates the divisive nature of the dispute. Ironically, the fight occurred between two of the war's prominent air intelligence leaders; Major General Clayton Bissell, the Army Assistant Chief of Staff for Intelligence (in Army staff parlance the G-2) and Brigadier General George C. (Mac) McDonald, US Strategic Air Forces (USSTAF), Director of Intelligence (known as the A-2 in the AAF). (Note: In early 1944 the USSTAF was created to control the AAFs' in Europe, including the primary stategic air forces; 8 AF in Britian and 15 AF in Italy.) MacDonald was an air intelligence

pioneer, having flown in World War I, served in aerial photo units during the interwar period and acted as Assistant Military Attache for Air at the American Embassy in London just prior to WWII.(17:8) Its natural that this air intelligence leader should chafe under the jurisdictional leadership of Army Intelligence. Bissell was also an air intelligence leader having served as the Hq AAF, A-2. However in 1944 he assumed the position of Army G-2.

Despite their similar backgrounds the two men did not see eye to eye on the G-2, A-2 relationship. In a June 1944 letter to MacDonald, Bissell told him in no uncertain terms to stop "raising the question of complete separation of A-2 and G-2 functions in Headquarters Washington such as have been contained in several of your letters to me and in your recent letters to General White (the recently appointed Hq AAF, A-2)."(18:2-3) Bissell suggested to MacDonald that if he couldn't do this that then he "address a letter to the adjudant general, through channels, recommending changes."(18:2) But he caveated this suggestion with the warning that "General Marshall (the Army Chief of Staff) does not wish to raise the issue."(18:2) Finally Bissell appealed to MacDonald's loyalty and patriotism saying; "No officer in the Army is more keenly interested in the development of the Air Forces than I am. I stuck with General (Billy) Mitchell through the four hard years, including the (court marshall) trial. (However) anything that tends to break down the

effective relationship (between the Army and the AAF) is not in the best interest of the war."(18:2-3) Bissell concluded by saying; "I need your help and cooperation and I feel certain that after this clear presentation of the situation that I can depend on your cooperation. I would appreciate an assurance that such is the case or a clean cut statement to the contrary."(18:3)

General MacDonald's 10 July 1944 response to Bissell's remarkable letter was neither reassuring nor clean cut. He spent almost three full pages reassuring General Bissell of "every cooperation."(19:1-3) But then in a complete reversal of the tenor and tone of the main body of the letter he added an inflamatory post script which shot to the heart of the juridictional issue. He wrote, "The above letter (Bissel's) was shown to General (Carl) Spaatz (now the commander of the USSTAF) who commented that there are fundamental differences between air, ground and naval intelligence and they should be handled by their own experts, with integration at the highest level. In fact, air intelligence is a greater specialty than naval intelligence and there is no more reason why it should be integrated in the Army than naval intelligence should be similarly integrated."(19:3) In other words MacDonald was not backing off.

A point not lost on Bissell who responded on 10 September by again suggesting that MacDonald bring the matter up "through proper channels."(20:2)

This type of sniping took place from the flag officer level on down throughout the war. It was a constant drain on the limited resources of air intelligence since considerable energy had to be devoted to the bureaucratic interservice war. But it was more than just a petty "turf" battle. The Army G-2 restrictions on the A-2 did have a substantial negative impact on the ability of air intelligence to conduct its business. For example G-2 did not allow A-2 to communicate directly with air attaches until December 1941 or overseas Air Force Headquarters until October 1942.(21:1-22) This hobbling of air intelligence affected all of its operations throughout the war.

As if the A-2, G-2 juridictional problems weren't negative enough there were also internecine struggles occurring within the the air intelligence arm. When the AAF was created in June 1941 air intelligence responsibilities became blurred. The AAF created an A-2 which came into direct competition with the old Intelligence Division of the still existant Air Corps. The crux of the dispute was over who controlled the staff versus operational aspects of air intelligence. It wasn't until March 1942 (three months after the Pearl Harbor attack) that the issue was resolved, with the A-2 getting full responsibility for all of air intelligence.(22:25) However in the intervening 10 months it was unclear who was in charge, effectively crippling air intelligence during this critical period.

The fragmentation of intelligence had a particularly negative impact on the most critical of intelligence functions from a strategic viewpoint; targeting. The requirement for an organization within the air intelligence community charged with targeting was recognized prior to the war. Colonel Almond's lecture and Lieutenant Colonel Spaatz's memo to General Arnold have already been mentioned. But the chief advocate for a targeting organization appears to have been (then) Captain Haywood Hansell.

Hansell, who was later to rise to flag rank and significant command responsibility in both Europe and the Pacific, was a key member of the Air Corps Intelligence Division and one of the prime movers in development of AWPD plans mentioned earlier. In a 1940 memo to Colonel R. C. Candee, Chief of the Air Corps Intelligence Division, he drew on the British wartime experience of Air Commodore John Slessor, a key Royal Air Force (RAF) leader, in pushing for a distinct targeting organization. Slessor informed him "We have found ... intelligence for air planning is different from intelligence ... for surface forces."(23:1) He also told Hansell that the British had formed a Ministry of Economic Warfare and an air targeting unit to guide its studies. Slessor stressed the importance of target intelligence to support precision bombardment.(23:1)

Unfortuately a targeting organization was not formed within the air intelligence community or, for that matter, in

the broader intelligence community prior to the war. Given these problems it is not surprising that air intelligence failed in its first major test at identifying the center of gravity -- providing accurate intelligence to second AAF war plan, AWPD-42. The Joint Intelligence Committee of the Joint Chiefs of Staff rejected the plan's target selection because the intelligence foundation proved weak.(4:145) This prompted General Arnold to create an air intelligence targeting organization; the Committee of Operations Analysis (COA), charged with industrial/economic target development. Unfortunately he placed COA under the direction of the Office of Management Services rather than A-2. Thus further fragmenting the intelligence and targeting responsibilities at Air Force headquarters.(4:148) To add to the confusion the Army G-2 also formed a targeting organization.

In March 1943 dissatisfaction with the existing AAF structure led to a major reorganization of the headquarters. The A-2 office was renamed the Assistant Chief of Air Staff, Intelligence (AC/AS,I). The new office had five prinicpal divisions: Operational Intelligence, Counter Intelligence, Intelligence Information, Historical and Combat Liaison and Training. The Operational Intelligence Division had a Target Information Branch.(24:42)

Eventually targeting as a discipline and a distinct organizational entity became more prominent at Hq AAF. By October 1944 there was a full time Deputy for Targets (a

General officer position) working directly for the AC/AS,I. The Targeting Deputy had an extensive AAF staff and also served as the Director of the Joint Target Group (JTG), an interservice, intergovernment organization of some size responsible for all aerial targeting.(25:1) Thus in the waning months of the war air intelligence had apparently risen to prominence in terms of targeting responsibility. However this was to have little impact in Europe where the AAF faced its sternest task and was most in need of center of gravity information on Nazi Germany. Targets in the European Theater, such as they were, were developed by a RAF/AAF architecture quite independent of any substantive help or influence by Washington.

FLAWED INTELLIGENCE ARCHITECTURE IN EUROPE

The air intelligence growing pains suffered in Washington were mirror imaged in London and East Anglia. Fortunately the US airmen in Europe could rely on the British for intelligence support.(26:1-2) However this was not entirely a blessing since it saddled the US air intelligence with a unique set of problems which plagued it throughout the war. British intelligence was having its own growing pains, after proving "woefully inadequate" in 1939 at the beginning of the war.(18:136) As late as March 1939 the Chief of the RAF Bomber Command stated an "urgent need for an efficient intelligence organization."(28:149) He indicated that the

command "possessed no detailed information relating to potential targets."(28:149) The three years of experience it did have were in support of the area bombing campaign of the Royal Air Force (RAF) where "ball park" intelligence was good enough. It had no experience in providing highly crafted intelligence to support precise daylight strikes against centers of gravity. Subsequently it had not developed the organizational architecture nor the intelligence sources or methods to find the center of gravity. Since the AAF had not developed an air intelligence capability of it's own it was forced to adopt the flawed RAF intelligence architecture and approach. Essentially it was totaly reliant upon the British until late in the war when it took tentative steps to build a more suitable organizational approach.

This organizational development process began in April 1942 (four plus months after war was declared) when the first group of US air intelligence personnel arrived in Britian for training.(29:1) A month later on 26 May the first air intelligence organization ever charged with support of daylight precision bombardment, 8 AF, A-2, was established. (29:1-2)

In 1944 Colonel Earl Thompson, acting AC/AS,I for the AAF,

discussed the problems associated with this effort; no satisfactory

model existed, there was little or no information, no

targets, no maps, and no anti-aircraft data.(30:1-2) Lt. Col. John McCall on a fact finding trip for General Arnold in 1943 described similar problems to which he added the fact that targeting was not performed in 8 AF, A-2 but in A-5 (again splitting air force targeting and intelligence) and that there was significant "overlap ...(in) the sphere of torget intelligence."(31:1-150)

This overlap resulted from a rapid proliferation of US and British targeting organizations in Britian. At its peak there where five such organizations, each with different institutional outlooks and vested interests.(32:1-160)

This fragmentation of intelligence didn't just occur at the pinacle (targeting) of the intelligence production cycle but also at the input (collection) end and in the middle (operational analysis) portion of the cycle. Instead of a coherent organizational architecture that led to a hierarchical processing of data each individual organization appeared to attack its unique portion of the intelligence production cycle with more regard for it's own organizational interests and perspective than the overall production of an all-source derived and customer focused intelligence and targeting product.

This independent "functionalist" approach to intelligence production was most pronounced at the collection end of the cycle. With communications intelligence (COMINT) being the most independent of the lot. The famous Ultra

information (obtained from the high level breaking of German codes), for example was often fed directly to high level customers without fusion and correlation with other sources of information or contextual significance being given to the data by intelligence analytical or targeting personnel. The opportunities for this to occur were enhanced by the fact that the primary theater COMINT organization at Bletchley Park was not an intregal part of a larger analysis or targeting organization.

When an American intelligence unit, known as 3-US, was created in Hut 3 at Bletchley Park in 1943 its independence from the theater targeting and analytical organizations was also assured by "stovepiping" its subordination to the Army Military Intelligence Service Headquarters in Washington. The only 3-US link to theater customers was through hand picked "Ultra Advisors" or "Representatives."(34:288)

These representatives obtained their information from British Ultra field organizations known as Special Liason Units and fed it directly, usually via briefings, to top level staff in the various commands.(33:288-289) The Americans picked as Ultra Advisors were the creme de la creme of the US military intelligence services. Such notables as William Bundy, later an editor of Foreign Affairs; Lewis Powell, a subsequent Associate Justice of the Supreme Court; and Alfred Friendly, a post war managing editor of the Washington Post, were among the elite who served as Ultra

Advisors.(33:289-293) They became caught up in the "unique spell" of Bletchley Park and in fact had a "monastic dedication" to the place.(33:290)

Unfortunately this sense of elitism often led to raw intelligence being fed directly to air commanders without analysis by personnel of the larger air intelligence organization, many of whom weren't even cleared for Ultra.(34:4) As one AAF intelligence analyst said: "If intelligence from certain sources or intelligence derived by certain methods (ie; Ultra) is considered supersecret and superior to the general run of intelligence, it tends to penetrate upward to command levels immediately without passing through the machinery of shirt sleeve intelligence analysis. Intelligence items of this character can be falsely interpreted and wrongly evaluated by commanders and high-ranking staff officers who do not themselves possess the necessary background possessed by the whole intelligence staff as a unit."(35:22)

Another problem was that finished intelligence which did not have Ultra as one of its sources was often held in low regard by senior commanders because of the seductive nature of the COMINT source.(34:4) This had a particularly negative impact on air intelligence targeting recommendations since throughout the war "Ultra played little part" in developing target systems.(34:2-10)

Photographic intelligence (PHOTINT) was a much more

valuable source in target development than Ultra. It also had the added advantage of being closely associated with the AAF since it was generally shot from aircraft. Consequently PHOTINT proved to be "the most important single" source of target information for 8 AF.(35:44)

The most important PHOTINT organization in Europe was the Anglo-American Allied Central Interpretation Unit (ACIU) at Medmenham in East Anglia. Unfortuately, however this organization was also to become a source unto itself. As one report said; it was "not merely a photo interpretation agency but a photo intelligence agency."(35:44) Understandable since the the Medmenham operation like the one at Bletchey Park was not an integral part of an overall intelligence and targeting apparatus. This separation of PHOTINT from the larger European intelligence community was enforced by the Director of ACIU. He made a "strenuous effort ... to make communication very difficult between photo interpreters under his comand and the analysts of other intelligence agencies using other sources of information."(35:24) It was his view "that the interpreters should be kept free from contamination by other intelligence information, less such information bias their interpretation."(35:24)

Photos were also a seductive form of information for high level commanders, not because they could relate the enemy's conversations, like Ultra, but because they could illustrate graphically what the enemy looked like.

Commanders felt like they could become their "own intelligence analysts."(36:2) The PHOTINT "true believers," much like the COMINT gurus, felt photograhy "stood alone ... in isolation" of other forms of intelligence.(36:3)

This concious "isolation" of independent functional collection fiefdoms, with their own myopic analytical infrastructures led to problems. Carl Kaysen (a WWII air intelligence Captain and today a prominent Harvard economist and former senior member of the Kennedy and Johnson administrations) points out the pitfalls of this method of operations in a formerly classified 1949 Rand study:

"One example of this difficulty (of functionalism) can be given from WWII experience. On New Years Day, 1945, the Germans made a highly successful attack on the aircraft of the Allied Tactical Air Forces parked on the Belgian air fields. Looking back, the 12th Army Group Headquarters Intelligence Staff realized that it had in its hands a warning that this attack was coming. Unfortunately, the warning was divided into two different parts, coming from two different (functional) sources of intelligence which were handled by two different (functional) parts of the intelligence section of the headquarters. The first part of the warning was contained in a highly secret (Ultra) intelligence report, received shortly before the operation took place, that Operation Goldregen was going into effect. Since the officer who handled this specialized form of information (the Ultra Advisor) had never heard of Operation Goldregen before and could obtain no information from his own files about it he ignored the item, as he often ignored items which meant nothing to him. Elsewhere in the headquarters intelligence files, unknown to this officer, was a report on a prisoner of war interrogation. This prisoner of war had, before his front-line service, served at the headquarters of the Luftwaffe in Berlin as a clerk. In this capacity, he had seen certain instructions relative to Operation Goldregen which indicated clearly that it was an operation involving low-flying aircraft in large numbers. Had there been no division of function, had these two items of intelligence been correlated before New Year's Day, the German attack would have been much less effective than it was."(36:26)

A degree of functionalism was clearly necessary at the collection end of the intelligence cycle because of the highly technical nature of such disciplines as cryptanalysis and photo reconnaissance. The problem came when these technical organizations tried to become independent intelligence analysis agencies without regard for the requirement for all source correlation of information. Even the principle human intelligence (HUMINT - the world of spies) organization of the war, the Office of Stategic Services, "edited their efforts and interpreted them to the outside world."(36:24) Despite the fact that it makes intuitive sense that analytical and targeting organizations should control the collection efforts of the functional collection organizations, the opposite often happened.

This occurred because the collection organizations were larger and had to deal with operational problems of a highly technical matter. Therefore they developed as independent organizational units with a high degree of architectual integrity and focus. They operated under the direction of an indigenous commander who had a singularity of purpose. He was relatively unconstrained in his mission accomplishment. Particularly since the corporate flying AAF didn't understand the technical nature of his business and was too busy too try. Naturally these independent functional organizations wanted to present the information they collected without the

interference of bothersome analytical organizations who would put their own "body english" on the information. Therefore they developed their own integral one source intelligence organizations. A large part of this functional intelligence effort was aimed at institutional preservation. This led to an intelligence "selling" mentality on the part of the these organizations.

Contrast this organizational set-up with that of the analytical and targeting organizations. They were located in larger headquarters staffs under the ultimate direction of a commander who had a wide variety of interests, of which intelligence was often the least. Therefore the analytical organizations (who could afford to be objective about the multiple sources of information coming from the functional collection organizations) often had the least influence with the senior leaders and the least institutional influence in focusing the intelligence process.

Kaysen offered a fix to this problem with what he calls a "team" approach. Under this concept the team would consist of "all the technical specialties necessary for practice of the craft (of air intelligence) and who have access jointly to all information available from all intelligence sources."(36:27) These would have freedom for an intelligence "range of speculation" and a "high degree of intercommunication, discussion and joint judgement."(36:24-32)

There was another officer who recognized the chaotic organizational architecture of air intelligence in WWII and came close to fixing it. This was the previously mentioned General "Mac" McDonald, General Bissell's protaganist in the Army -- Air Force jurisdictional wars and Director of Intelligence for USSTAF. Given McDonald's unwillingness to back off his position in the face of oppostion from his superior Bissell, its not surprising that "Mac" attacked European Theater intelligence issues with equal vigor. However courage and tenacity weren't General McDonald's only attributes. He also possessed a wealth of air intelligence experience, a clear vision of where air intelligence in USSTAF should be headed, and most importantly he had a powerful supporter.

It didn't hurt that the supporter was the leading air war commander of the era, General Carl Spaatz, Commander of USSTAF. The Spaatz - McDonald relationship went back to the lean prewar years and was cemented in the early portion of the war when "Mac" served under General Spaatz as his senior air intelligence officer in the North Africa. By the time Spaatz took over USSTAF McDonald was a key member of his team. McDonald was also close to the senior operational leader on the Spaatz team, General Fred Anderson, USSTAF Deputy Commander for Operations. Spaatz, Anderson, and McDonald reportedly spent hours behind closed doors discussing air targeting and strategy.(37:2,2) But Spaatz

was more than just of friend of McDonalds, he genuinely believed in the value of air intelligence (remember his 1939 memo to General Arnold bemoaning a lack of intelligence in Hq Air Corps) and was intelligent enough to recognize Douhet's dictum that his success as commander would be judged by his ability to strike center of gravity targets. He would go to great lengths to strike at the German center of gravity (even disobeying direct orders from his commanders to do so, as we shall see). This convergence of events; a commander and a chief of operations who understood and valued intelligence; an air intelligence leader with extraordinary talent and courage; and, most of all, a desperate need by the American Air Forces to fulfill it's prewar promise of striking the center of gravity, was to lead to a number of organizational initatives that came close to creating the holistic "team" intelligence architecture Kaysen prescribed.

McDonald's first initative upon taking over as Director of Intelligence for USSTAF was creation of a new intelligence briefing format. This move was designed to cement his hold on air intelligence and to ensure that he was its chief spokesman in USSTAF. He disbanded the secret level briefing that he had inherited (which was open to the entire staff) and replaced it with an all source (including Ultra) close hold briefing that was open only to the senior USSTAF staff, principally Spaatz and Anderson. With this one stroke he "in

effect" created a "daily conference," that insured intelligence set the agenda for command decision making.(37:2,1-3) By making himself and his staff a vital part of the strategy process he added legitimacy to his later attempts to centralize control of all theater intelligence source organizations.

Since McDonald's "conception of his primary duty ... was one of organization," he began immediately to build a comprehensive centralized intelligence team.(37:2) His first organizational step was to put the USSTAF intelligence analysis house in order by taking over the independent A-5, Targeting Directorate, making it a section of the overall intelligence structure. This done, he went after control of photo intelligence by creating a Photo Reconnaissance and Intelligence Section.(37:3) Initially the section was "little more than a gleam in the eye" of McDonald.(37:9) However he slowly built it into a section that was capable of interpreting photo intelligence and assisting in its fusion with other sources of data. It worked particularly closely with the USSTAF Targets Section in developing target strategy.(37:5,9)

Although McDonald did not obtain direct control of the Ultra COMINT source he did control the flow of this data to Spaatz by placing the Ultra Representative under Directorate of Intelligence supervision. He also insured that raw Ultra information was fed to Spaatz only by a Directorate of

Intelligence officer and not by the "official" Ultra Advisor.(17:30-37) In this way he insured Ultra data was presented in context of other information. As new sources of signals intelligence (SIGINT) were developed McDonald created independent analytical capabilities to deal with them. For example "Y" intercept, which was derived from German Air Force (GAF) tactical communications was closely scrutinized by Directorate of Intelligence analysts.(37:18) This was particularly true after "Y" data started to come primarily from USSTAF airborne intercept.

Late in the war General McDonald recognized the importance Technical Intelligence (the exploitation of captured enemy equipment and data) would have in the war against Japan and in the postwar period. Technical Intelligence in Europe was controlled by the Air Technical Section, an organization under the "stovepipe" control of the AAF Material Command, located at Wright Field, Ohio. This Command considered exploitation of Technical Intelligence to be primarily for the purpose of "modification and research and development of our own aircraft," with intelligence being of "secondary importance."(37:33) General McDonald's attempt to take over the functions of the Technical Section met with "considerable opposition."(37:34) Never-the-less General Spaatz gave him his personal support because he believed "all intelligence matters belong ... under one central direction."(37:39) Spaatz's support insured Technical

Intelligence was eventually put under McDonald's control.

The powerful Spaatz's charter to centralize air intelligence affirmed McDonald in his conviction "that the shortcomings of American Air Intelligence must be corrected before the end of the war" (whose end was in sight).(37:36) Accordingly in the autumn of 1944 he began to push vigorously for an "independent, self-sufficient USSTAF intelligence organization, and to centralize within it all intelligence functions and personnel."(37:28)

McDonald envisioned this new organization as having two component parts: (1) A USSTAF Directorate of Intelligence performing staff support functions such as "policy control and overall coordination" and (2) An Intelligence Command perfroming operational functions such as "collection of raw intelligence material, the processing thereof, the disseminating of this intelligence, AND THE CONTROL OF THE VARIOUS SOURCE AGENCIES."(37:30) In the words of McDonald: "such single direction would bring the photographic wing under the command along with radio intecept companies (the "Y" source), whose output was purely an intelligence service, and the Air Technical Teams."(37:30) The command would also "... provide a pattern for fulfilment of intelligence requirements at USSTAF level and it would present a framework of the greatest flexibility and adaptability for chronologically satisfying, step by step, the development of intelligence requirements throughout the war period, the

armistice and the peace conference and will serve as well the air intelligence section in Washington of the National Department of Defense."(37:30)

This genuinely revolutionary concept in many respects sounds a great deal like Kaysen's "team," consisting of "all the technical specialties necessary for practice of the air intelligence craft."(36:27) McDonald clearly saw air intelligence as a highly operational process. One which was fundamentally a vertical continuum of collection, raw technical processing (photo interpretation, COMINT traffic analysis and cryptanalysis etc), operational intelligence analysis (air force capabilities studies, industrial capacity studies etc), targeting, and finally dissemination. He obviously intended to break up the hodge podge proliferation of functionalist source intelligence agencies who were essentially operating on the same horizontal plane with each another. Instead he intended to create a single cohesive vertical entity capable of focusing its energy on production of an operationally relevant all source product. McDonald was (correctly) convinced that the Directorate of Intelligence was "the only real intelligence service that exists or has existed in the Air Forces of the United States."(37:28) He planned to build on this capability.

Unfortunately General Spaatz wasn't in a building mood. When McDonald tried to sell him on the idea of creating an Air Intelligence Command in November 1944 Spaatz showed a

marked reluctance to create a new command. However, he did agree "to the centralization within the Intelligence Directorate of all USSTAF intelligence functions." General Arnold, when he was briefed on McDonald's plan also supported the general program but not the command concept.(37:31) So USSTAF air intelligence, while becoming more organizationally efficient, did not take the last final step towards organizational maturity; creation of a self contained vertical command entity, capable of fulfilling all the functional requirements necessary for air intelligence support to operational commanders. While this did't futher hinder the search for the center of gravity in Europe (McDonald's Directorate had already found that by this time --- which may explain Spaatz's reluctance to futher bother with the intelligence organization). It did effectively stop the next logical step in the organizational evolution of American Air Intelligence.

PERSONNEL PROBLEMS

Underlying the organizational difficulties of air intelligence was a personnel base which in general did not consist of the Air Force's "best and brightest." As one postwar study said the G-2 and A-2 were used as "a resting ground for officers who were unsuited in other fields, to an extent that ambitious and able officers have regarded an intelligence assignment as a serious setback to their

careers."(38:1-20) This opinion was shared by General Eisenhower, General Arnold and other senior officers, all of whom bemoaned the deplorable state of intelligence and the scarcity of quality officers in the field prior to and during the war.

The quality problem was recognized as early as 1932 by Major W. R. Weaver, then Chief of the Hq Air Corps Information Division (forerunner of the Intelligence Division). He said incompetent personnel had been causing intelligence failures and proposed to remedy the problem by getting qualified workers into the division. Unfortunately his request was disapproved.(39:1)

Personnel quality had not improved appreciably by 1941, according to an internal Intelligence Division memo. The head of the Division, the previously mentioned Colonel R. C. Candee, was trying to expand air intelligence to meet the needs of a growing AAF but was running into problems. In a memo to General Arnold he pointed out that under the existing personnel procurement system "The personnel pool from which all intelligence officers must be drawn is limited to reserve officers now on active duty or subject to call to active duty. The best men in this category are already in key positions or commitments have been made to place them in such positions. The inevitable result is that the officers available for this type of work (air intelligence) are those who have proved of limited, if of any, value in other

capacities."(40:1-6)

Exacerbating the problem was the low percentage of hardcore Air Corps Regular Officers in the Intelligence Division. This presented a serious leadership and quality problem for air intelligence since Regular Officers were the backbone of the Air Corps. They proved to be the foundation upon which the wartime AAF was built. The Intelligence Division was manned at only 8 % in Regular Officers, the lowest of any organization in Hq Air Corps.(41:1) By contrast the Material Division was manned at 50 %, Fiscal at 75 %, Plans at 43 %, and even the Personnel Division was manned at 20 % in Regular Officers. Candee asks a cogent question when citing these figures: "Why is professional military experience so unimportant in connection with intelligence duties as compared with other activities."(41:1) Unfortunately this question was never answered by the staff. It would take hard experience over the skies of Europe to illustrate the criticality of a professionally manned air intelligence organization.

While quality and professional leadership were a continuing difficulty, an equally pressing problem was a lack of simple raw numbers of personnel to fill intelligence billets in the rapidly growing AAF. The manpower shortages caused serious problems. Even 6 months after Pearl Harbor the Intelligence Division's Information Intelligence Section could only process 25% of raw incoming material into finished

intelligence. In the Operational Intelligence Section only 50% of a schedule calling for 361 vital Target Objective Folders for all theaters could be met.

One Intelligence Division proposal to fix the personnel problem was a massive recruiting campaign internal to the Armed Services. In September 1941 (three months prior to Pearl Harbor) a proposed AAF Bulletin, which essentially advertised air intelligence and solicited nominees for the activity from the Army and Navy, was sent out for coordination by the Division.(42:1-2) It was rejected by the Army G-2 who disagreed "entirely with the tone of the memorandum, for the reason that the attitude is that of begging people to come on duty with us."(43:1)

Given the circumstances begging may have been warranted. With the blockage of this plan the icreasingly desparate Intelligence Division tried another tact, one of acquiring officers "from sources outside the present military establishment."(40:1) Teachers, lawyers and news reporters were considered for intelligence analysis work, while architects and engineers were being looked at for PHOTINT jobs. These civilians were targeted based on the experience of the RAF in rapidly building an air intelligence organization during the early days of WWII. The division recommended recruiting 200 civilian personnel for training.(40:1)

This is in fact what eventually happened, but in much

larger numbers than 200. As was pointed out earlier, the Intelligence Section of the old Air Corps Information Division had only one officer in it as late as 1938. There were repeated attempts over the years to enlarge the section. The latest effort came in 1936 when a request for one officer and five civilians was refused.(44:1) After the formation of the Intelligence Division in December 1940 the organization did begin to grow slowly. By the end of April 1941 there were 35 officers and 29 civilians in the Division.(46:1) But soon the pace of growth picked up dramatically. Colonel Candee saw a need for further rapid growth in the Division and requested a total strength of 129 oficers and 404 civilians by the end of the Fiscal Year (30 September) 1942. He further estimated a total AAF requirement for 950 to 1310 air intelligence officers and 1,200 to 2,000 enlisted men during the same period.

Candee's estimates were far wide of the mark. The authorized strength of the AC/AS,I (the succesor to the old Intelligence Division) alone was 1195 officers, civilians and enlisted men by June 1945.(48:6) This growth was duplicted throughout the AAF leading to a several thousand percent increase in air intelligence personnel during the 44 month period from the Pearl Harbor in 1941 to the victory over Japan in 1945.

This exponential growth was bound to cause difficulties. Particularly since, as was pointed out, there were very few

intelligence experienced Regular Officers around to lead the large influx of new people. Those present were, in many cases, Regular Army castoffs or dregs from the reserves. Further compounding the intelligence leadership problem in Washington was an extremly rapid turnover of senior personnel. There were 8 different heads of AAF intelligence during the 36 months of war. One officer held the post for only two weeks, while he was recovering from pneumonia! Despite these problems the overseas air commands were desparate for intelligence manpower. In 1943 the 8 AF, A-2 was so shorthanded that it took 50 new officers directly from the Officer Training and Candidate Schools with no stateside intelligence training enroute.(49:1) The commands were having to devote a substantial amount of time giving theater intelligence training to inbound personnel anyway. This situation arose because of serious problems with air intelligence training in the US.

AIR INTELLIGENCE TRAINING PROBLEMS

A solid Continental US based air intelligence training program would have been of immense value to an AAF trying to integrate thousands of new intelligence personnnel. Unfortunately air intelligence training suffered from the same prewar neglect as the rest of air intelligence. During the 1930's the Air Corps Tactical School had a Military Intelligence Course but it was very much ground oriented. In

planning for the school year 1935 - 36 Lieutenant Colonel H. A. Dargue, Assistant Commandant, tried to rectify this. He directed the course towards air intelligence but cautioned that "much pioneer work will have to be done to develop a course in military intelligence" with an "air point of view."(50:1) Lectures were given that year that included data on intelligence estimates of the situation and targeting priorities.(51:1) Despite this air intelligence got a total of only one sentence of coverage in the Military Intelligence Course text through the year 1938.(52:10) However in the 1939 - 40 version of the text a new supplement was added entitled an "Extract of a Tentative Air Corps Field Manual 1-40, Intelligence Procedure in Aviation Units."(53:72-90)

The Tactical School interest in air intelligence was not shared by other advanced Army schools such as the grooming school for middle grade Army Officers, the Command and General Staff School at Fort Leavenworth, Kansas. The previously mentioned Air Corps board, which General Arnold convened in 1939 to determine Air Corps intelligence requirements, noted this discrepancy. It recommended that at least 2 hours in the Command and General Staff School curriculum be devoted to the subject of air intelligence, specifically to such subjects as target selection and target vulnerability analysis.(16:4) The recommendations were not adopted.

The dirth of air intelligence training at advanced

Army and AAF schools hurt in two respects. The obvious impact was to deny the AAF enough experienced intelligence leaders during the war. A less obvious impact was the lack of education operational AAF leaders received on the potential payoffs of intelligence. As a consequence many AAF commanders, particularly at the wing and group level, "didn't know what to do with their intelligence officers" or the information they could provide. For example a report from the Pacific said, "another prime need in the whole combat intelligence set-up is to educate air commanders to the need for, and functions of, combat intelligence. In general from what I have gathered, combat intelligence officers have been treated as surplus baggage, and have had an uphill fight to justify their existance."(54:3) This plus the "lack of experienced intelligence officers" seriously hurt the credibility of air intelligence with the operators.

The Command and General Staff College and Air Corps Tactical School were intended to provide advanced training to a select few. Broad basic intelligence training for lower ranking personnel was the responsibility of unit commanders who, as we saw above, were ill-educated on air intelligence. When this type of training was conducted it was accomplished using outdated manuals and instructors whose knowledge was as limited as the texts they taught from. The only other entry level type training which was somewhat related to air intelligence was the Army Engineering School's Photographic

Interpretation Course at Fort Belvoir, Virgina. But very few AAF personnel were trained at the school.

The air intelligence training shortfall became a serious AAF concern as war clouds began to gather over the Pacific. Less than 5 months before Pearl Harbor General George Brett, then Chief of Staff of the Air Corps, wrote to General Arnold voicing his opinions on the subject. He said, "Trained intelligence officers are practically non-existant throughout the Air Forces, yet they play a most vital part in the functioning of these organizations. This is always overlooked in peacetime and no mechanism exists for the special training of personnnel required throughout all echelons. It is hoped that at this late date it will be possible to set up at least the basic school from which other area schools may be established ..."(55:II-III)

This memo was the catalyst that drove General Arnold to try to establish an AAF Air Intelligence School. Predictably however the Army G-2 opposed the initative contending "all instruction along military intelligence lines should be unified and presented in one school only."(56:1) Basically the G-2 was satisfied with the status quo.

The AAF wasn't content with the staus quo and was joined in its disent by the Army Assistant Chief of Staff for Operations, General Harry L. Twaddle. Twaddle maintained that independent air missions and operations required a special type of air intelligence training.(57:1) This, plus

persistance on the part of Hqs AAF and Air Corps, led to funding being approved by the Army Chief of Staff for an air intelligence school.(58:1)

The AAF Air Intelligence School (AAFAIS) was established at Bolling Field, Washington D.C., on 15 January 1942. Unfortunately limited facilities necessitated the almost immediate move of the school to the University of Maryland at College Park. The school finally started its first class on 16 February. Qualified instructors were a continuing problem for AAFAIS. Of the original 9 faculty instructors only the school director, Captain James Hurt, was considered to have the training necessary to serve as an intelligence instructor.(59:1) Despite this 33 students graduated from the first course on 31 March 1942. While this course was in session the AAF bought Harrisburg Academy, an entire boys boarding school, in Harrisburg, Pennsylvania, for $300,000.

The AAFAIS at Harrisburg was plagued with problems almost from the begining of its first class on 15 April 1942. The faculty consisted of the College Park instructors plus top graduates of the first AAFAIS class. The decision to use students from preceding classes as instructors was clearly a poor one. It led to a "blind leading the blind" syndrome in terms of intelligence experience. It was also a problem in the sense that the new faculty members knew little more about professional military traditions, practices and command

relationships than did the students. This was destined to lead to problems.

Student selection was also a problem. Many older men (up to 50 years old) were selected to attend the school. They found it difficult to relate to younger instructors or, if given commisions at higher rank than their instructors, to learn from them. This problem persisted when they got into the field and had to deal with young crew members. Also many were simply physically incapable of handling difficult living conditions in the field, particularly in the Southwest Pacific.(60:1) By 1943 the poor quality of the students became a matter of grave concern to the Hq AAF Chief of Intelligence.

In reality the weakness of the students was only one of a myriad of problems plauging AAFAIS. Lieutenant Colonel Carl H. Norcross, Assistant A-2 of the VIII Bomber Comand (an 8 AF organization), after visiting the school, made a very negative report to Hq AAF about the conditions at AAFAIS. Among other things he said: "The quality of the students is the poorest in history ... they are not interested and their lack of interest is reflected in many ways, such as lateness, absence, poor work, cheating, and sleeping in class." He also noted that the school was too small for the number of students, that the faculty was very unhappy with the current commanding officer (who had only recently taken over), and that "morale of the faculty members is the lowest in the

history of the school."(61:1-4) The Norcross report led to a major inspection of the Harrisburg resulting in the removal of the Commander, Colonel Harvey H. Holland.(62:1-10) The previous AAFAIS Commander (and the founder of the school at Harrisburg), Colonel E. F. Koenig, also left under difficult conditions.(63:1)

Shortly after Norcross made his report AAFAIS was racked with a WWII version of a fraud, waste and abuse case. It seems that when the school was bought everything that went along with a boy's school - such as basketballs, infirmary items, and even food from the cafeteria - was also purchased. Regretably an official government inventory list of these items was never accomplished. To compound this problem Colonel Koening, who was then the Commander, cavalierly decided, without permission, to donate substantial amounts of the saleable inventory to "charitable and educational" institutions in the local area. The food, however, he kept and this the faculty consumed gratis. Although no one was punished for this comedy of errors the school officers club was forced to reimburse the government to the tune of $665.94 for the food.(64:1-5)

These incidents were indicative of the overall lax operation of an organization that was slapped together as a bandaid to cure years of air intelligence neglect. In retrospect the problems at AAFAIS seem almost predictable. The fraud waste and abuse case was apparently the last straw

for Hq AAF and in February 1943 plans to close the school came under discussion. The school was closed in early 1944 and operations were transfered to the AAF School of Applied Tactics (AAFSAT) at Orlando, Flordia, which was already teaching an Intelligence Applications Course.

The marriage of the overly academic Harrisburg course with the more practical AAFSAT course had a positive affect on air intelligence training. Prior to the move Harrisburg graduates had often gone to the combat commands without ever having been on an Army Airfield, without being familar with aircraft, other than plastic models, and never having talked to pilots and combat crews. There were several AAF Fields in central Flordia and as a consequence AAFSAT intelligence students got to touch the real AAF, to include at least one aircraft ride.(65:13)

The move to Flordia also led to the establishment of the AAF's first Senior Intelligence Officer Course, aimed specifically at preparing officers for command and staff positions.(66:57,91) Prior to this all training was very basic and technical in nature. This advance led to some of the first discussions, in a rigorous sense, concerning fundamental air intelligence philosophical and doctrinal issues. Unfortunately the Course wasn't instituted until February 1945, a scant 7 months before the end ot the war. Therefore establishment of a coherent air intelligence doctrine was never achieved.

LACK OF A COHERENT INTELLIGENCE DOCTRINE

It is arguable that the primary reason for the overall AAF success in WWII was the fact that it was built on a solid doctrinal foundation. The strategic air doctrine developed at the Air Corps Tactical School gave the wartime AAF the necessary focus to overcome the many obstacles it faced, such as lack of an escort fighter, bad weather in Europe, constant diversions of strategic air power to tactical targets, etc etc. When reading the private correspondence of the senior AAF leaders; Spaatz, Iaker, Arnold and others it is easy to detect a tone of frustration and anger over the many roadblocks airpower encountered. But what one never senses in the letters is a tone of uncertainty. They always knew where they were headed. Unfortunately AAF air intelligence did not have this same doctrinal foundation and consequently did not have the vital sense of direction that resided in the larger operational AAF.

There wasn't even an official regulation for air intelligence until 1940 when Air Corps Field Manual 1-40, Intelligence Procedure in Aviation Units was published.(67:1-25) The manual was not a doctrinal document in any sense of the word and wasn't even much of a manual. It contains a myriad of flaws. The Manual's fundamental problem was a failure to tie air intelligence to the specific missions of the Air Force. The document could have been

written for the Army or Navy. As General Spaatz said: "air intelligence is unique." But this is not reflected in the manual. Instead it lists mechanical procedures and forms. It is essentially an academic check list of tasks. As a consequence collection, analysis and targeting are considered as separate functions rather than as part of of a highly interdependent process. Sadly it is a second rate piece of work. It clearly does not reflect the rigor and quality of thought that was being given to operational questions. Never-the-less it was to serve as the guiding light for air intelligence throughout the war.

There was no one in air intelligence charged with developing a basic philosophy or doctrine. No organization existed to collect and disseminate new ideas and developments in intelligence methodology. No institutionalized body of debate or discussion existed. In other words there was no Air Corps Tactical School for air intelligence. Basically air intelligence operated on a make it up as you go along approach. Its not surprising that many operators looked upon intelligence as a waste of time. As one AAF General of the time said: "Intelligence was just another staff function and usually considered a minor function at that, except by those in intelligence."(68:2)

AIR INTELLIGENCE FINDS OIL

But intelligence wasn't a minor function. General

McDonald proved this conclusively at USSTAF. Its not coincidental that shortly after McDonald took over as Director of Intelligence that oil was discovered as the Germany's glass jaw. As early as March 1944 a "Plan For Completion of the Combined Bomber Offensive" was forwarded to General Spaatz recommending oil as its top priority.(37:4)

The USSBS said the bombardment of oil targets, when it began was "catastrophic" for Germany.(5:78-83) If McDonald had developed a credible intelligence organization earlier the entire history of WWII might have been different. As General Haywood Hansell points out "If the oil attacks had been initiated in November 1943... the Germans (would have been) completely out of aviation gasoline by May 1944... and motor stocks showed about the same situation."(4:275) In other words the German war machine would have collapsed a month before the D-Day invasion. But as stated in the USSBS, even ardent oil attack advocates didn't appreciate the promising situation they had, because until McDonald developed the intelligence to support center of gravity targeting they couldn't.(5:78-85)

Lieutenant Colonel McCall pointed out in his 1943 trip to England that there was little or no intelligence in London on oil.(20:TAB e) But because of a dynamic intelligence effort by late March 1944 USSTAF leaders were strongly advocating oil as the German center of gravity. This came to a head in a crucial 25 March pre D-Day targeting meeting with

General Eisenhower. The meeting boiled down to a choice between strategic attacks on oil or tactical attacks on rail transportation targets. Eisenhower selected the rail targets because McDonald could not provide the conclusive intelligence necessary to convince the General to attack oil. (21:30-35)

Some authors have suggested General Eisenhower was not a supporter of strategic bombardment and would have selected the more tactically oriented rail targets under any circumstances. This was proven not to be the case since good solid intelligence made Eisenhower a believer less than two months later. During this critical 47 day period USSTAF Intelligence focused its entire attention on the question of oil as a center of gravity target. Of critical importance to this endeavor was General Spaatz's faith in McDonald. He literally staked his career on intelligence by ordering the bombardment of a limited number of oil targets in contravention of the spirit, if not the letter, of General Eisenhower's orders. (21:52-69)

However this risk paid off because on 12 May an attack on the German oil works at Leuna provided an intelligence "smoking gun" to the oil advocates. Data obtained through Ultra signals intelligence was comprehensively fused with myriad other sources of information by USSTAF analysts and this provided excellent proof of the German vulnerability in oil. (22:356-357) Based on this data General Eisenhower

reversed his decision and oil became the targeted center of gravity for the remainder of the war. Prior to this decision only 5,599 tons of bombs had been dropped on oil targets. Following the development of credible intelligence 191,000 tons were put on oil -- a 3,411 percent increase!(23:13) The results for Germany were indeed "catastrophic." As Albert Speer said, "It meant the end of German armaments production."(7:346)

It would seem that air intelligence had finally ended its search for the center of gravity. However there is a comic opera historical footnote to this era of air intelligence that provides further proof of the overall weakness of air intelligence. On 27 January 1945, in the midst of the successful oil campaign General Charles Banfil, Director of Intelligence for 8 AF "proposed a revision to target thinking." Banfil claimed "results have not been conclusive, even in oil" and went on to propose expanding the target list to "three or four systems" beyond oil. He suggested going to large targets in what he called his "cumulative damage" principal.(24:1-23) Fortunately, despite Banfil's counsel, the attack on the oil center of gravity continued leading to what General Omar Bradley described as "the direct factor behind the destruction or surrender of vast quantities of tanks and trucks and of thousands upon thousands of enemy troops."(4:224)

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CHAPTER III -- AIR INTELLIGENCE IN THE POSTWAR ERA

At the beginning of WWII the Army Air Force had in its grasp the technology and the doctrine to attack Germany's center of gravity. General Hansell provides a convincing case that decisive results could have been achieved as early as May 1944. The Army Air Force heavyweight had his fist cocked to deliver the knockout blow. But, because of the failure to develop an effective air intelligence capability, there was no mechanism to trace the center of gravity to a decisive glass jaw in the German military-industrial infrastructure. The center of gravity target could not even be punched until after the Leuna raid on 12 May 1944. And even then the flawed air intelligence structure the Army Air Force had belatedly created attempted to divert them away from the center of gravity, as Banfil's memo shows.

Perhaps General Arnold summed up the situation best in his post war report: "Our past concepts of intelligence needs were insufficient to cover the requirements of modern war. Strategic air warfare can be neither soundly planned nor efficiently executed without a continuous flow of detailed (intelligence) information..."

POSTWAR AIR INTELLIGENCE ARCHITECTURE

The American Air Force entered the postwar era determined to set it's intelligence house in order. However

it wasn't clear what role service intelligence organizations would play in the coming era. The prevailing wisdom was that intelligence should be highly centralized, specifically at the national level. This impetus eventually led to the creation of massive national intelligence organizations such as the Central Intelligence Agency (CIA) and the National Security Agency (NSA) (which was responsible for SIGINT). These organizations were to become primarily motivated to serve Washington level decision makers, leaving support of the service headquarters and the operational commands in the hands of the services. However this eventual evolution of purpose by the national intelligence organizations was not forseen at the time. Thus the need for separate service specific intelligence organizations came under question during this period.

Generally the Air Force leadership and the Hq Army Air Force A-2 favored the creation of a centralized intelligence organization.(2:1) However, given the uncertainty of the future of intelligence the Hq Army Air Force A-2 was hedging his bets by looking into the creation of an "Air Intelligence Agency." This was done in case "the Joint Chiefs of Staff or congress fail(ed) to establish some form of collective agency."(1:2) Whatever the national authorities decided the A-2 most definitely wanted intelligence responsibilities to be clearly "delineated" lest the A-2, G-2 feud be continued into the postwar period.(1:4)

However this is exactly what happened when the Army G-2 attempted to create an Intelligence Corps. Basically the Army came at the centralization issue from a completely different direction attempting to centralize intelligence within the Army in the form of a Corps. The Army Air Force A-2, General Elwood (Pete) Quesada, vehemently opposed this initative, maintaining that air intelligence duty should be perfomed by Air Force line officers.(3:21) There was also opposition to the plan on the grounds that it was premature since it wasn't clear what direction the "Central Intelligence Group" initative was going in.(4:Tab H)

Air intelligence did manage to keep its independence from the G-2 until the independent Air Force was created in September 1947. But it was not able to maintain it's status as an equal staff partner in the new United States Air Force (USAF). Almost immmediately after the new service was established intelligence was placed under the direction of the Deputy Chief of Staff for Operations (DCS/O).

Predictibly air intelligence officers opposed the merger of operations and intelligence. Leading the opposition was General "Mac" McDonald, who was now the head of USAF Intelligence. He felt that placing air intelligence under the DCS/O would deemphasize it's importance at a time when the criticality of the function was growing.(5:24) McDonald continued to see air intelligence as a highly operational process. A process that must be "fully as

dynamic in peace as during war."(6:13) However this was not a battle McDonald was destined to win. Intelligence was placed under operations in 1948.

Air intelligence officer's didn't give up the fight though. General Charles P. Cabell, McDonalds successor continued to oppose the merger. In a November 1948 address to the Air War College Senior Intelligence Class he said "Despite a lot of talk about intelligence these days, and despite our concerted efforts to build a smooth working organization, we are decidedly handicapped by a widespread reluctance in the Air Force to visualize the intelligence interdependence of air intelligence and operations."(7:1)

The operations - intelligence issue continued to be raised during the 1950s. In May 1950 the Hq USAF Director of Intelligence recommended "that the USAF adopt the policy that the intelligence activity in operational units at all levels of command be a principal and independent staff function co-equal with personnel, material and operations,"(8:1) The Strategic Air Command (SAC) was the only major player to support the air intelligence position. However the Hq USAF DCS Operations and DCS Personnel killed the idea of intelligence becoming a co-equal DCS on the Air Staff.(9:6)

Finally in 1957 Hq Air Force decided to take intelligence out from under Operations on the Air Staff. But they failed to make it a DCS, instead creating the position of Assistant Chief of Staff for Intelligence

(ACSI).(10:50) This was a two star or Major General position while the normal Air Staff DCS was (and is) a three star or Lieutenant General. This made it very difficult for air intelligence to influence USAF strategy or policy. Another draw back to this arrangement was that many of the Senior Intelligence Officers (SIO) in the commands were two stars. For example the SAC DCS Intelligence and the Commander of USAF Security Service (USAFSS), the Air Force's primary SIGINT organization, were both manned with Major Generals. This made it difficult for the ACSI to influence air intelligence policy, personnel and other key issues. Despite these inherent problems intelligence on the Hq USAF Air Staff has remained a two star ACSI.

The postion of intelligence on the Major Air Command staffs has varied over the years. The only operational Major Command that has maintained intelligence as a flag officer DCS essentially co-equal with other staff functions is SAC. The other operational commands have periodically moved intelligence under operations or in some cases plans. They have manned it with General Officers and Colonels. The only consistant approach has been the inconsistency of the staff position of intelligence.

Despite these larger issues the Hq USAF internal air intelligence organization underwent major changes in the postwar period. The organization that evolved consisted of two basic parts (1) Operations Intelligence and Targeting and

(2) Systems, Policy and Collections or Intelligence Management. Technical Intelligence was lost to the Material Command in 1950 came back under Directorate of Intelligence control in 1951 and was lost again to Air Force Systems Command in the late 1950s.(11:1)

The coming of age of strategic targeting was an intelligence bright spot during this era. Nuclear weapons, new high-tech delivery systems and the painful experience of searching for the German center of gravity in WWII all combined to focus Air Force attention on targeting. In fact the USAF was considering ways to obtain target intelligence for guided missile strikes as early as June 1945.(12:1-2) The primary WWII targeting authority to emerge from the war - the Joint Target Group (JTG) - remained under A-2 control in the immediate postwar period.

At first the JTG thought that intelligence on potential post war enemies could be collected from open source information such as economic abstracts and trade data. This approach had provided valuable information on the German economy in the early days of WWII. In fact the prime concern of the JTG was "how to cope with a perfect avalanche of information."(13:12) The key to this problem, in the words of one of the leading targeteers of the era was the "IBM card."(13:12) While automation was to play a vital role in the intelligence process in the postwar period it couldn't make up for a lack of information on the principal enemy that

emerged -- the Soviet Union. Moscow's secrecy and its lack of involvement in the international trade and financial markets severely limited the open source material which was available. When the realities of this situation began to dawn on the senior leadership of the nation and the Air Force new strategic targeting and collection mechanisms were rapidly created.

Eventually strategic targeting was removed from the control of Hq USAF intelligence and placed under the control of the Joint Strategic Targets Planning Staff (JSTPS) at Hq SAC, Omaha, Nebraska where it remains today. This organization institutionalized excellence in the field of strategic targeting. Unfortunately tactical targeting did not receive the same emphasis. Essentially tactical targeting became the responsibility of the theatre commanders, with very poor results.(14:3) This neglect of the tactical side of the targeting business has continued up until the present time. The targeting problems encountered in Vietnam and Korea are a direct consequence of this lack of attention.

An area that did receive a great deal of emphasis was strategic intelligence collection, principally on the Soviet Union. This was driven not only by the need to target the Soviets but also by the perceived need to warn against a possible Soviet surprise nuclear attack. In fact the prevention of surprise became (and still is) the highest

priority of Air Force Intelligence. As a consequence the USAF and air intelligence became obsessed with collection, almost as an end in itself.

One offshoot of this was the creation of a massive SIGINT apparatus -- the previously mentioned USAF Security Service (USAFSS). This organization grew up separate and apart from mainstream Air Force Intelligence. In 1940 USAFSS had 1,200 manpower slots. By 1959 it had grown to 21,341 slots world wide.(15:1-10) It also expanded it's collection suite during the 1950s. The Command acquired an airborne SIGINT capability in 1951, using B-29s.(16:20) By July 1951 it had 11 ground collection stations, known as Radio Squadrons Mobile and was establishing 2 field processing centers, in Europe and the Pacific, known as Security Groups. The groups were to process and report SIGINT obtained from subordinate ground and air collectors.(16:Series B) Unfortunately most of this reporting was aimed at support of it's principle parent organization the National Security Agency (NSA), rather than to support of an integrated and customer focused air intelligence organization. Today USAFSS has evolved into the Electronic Security Command (ESC). ESC is also more tied to NSA than to the Air Force operating commands. In fact the organizational lash up is almost an exact duplicate, on a much larger scale, of the 3-US Ultra arrangement in WWII Europe.

At the same time USAFSS was getting a hammer lock on

the broad air intelligence SIGINT mission the operating commands were obtaining control of a piece of the SIGINT pie in the form of electronic intelligence (ELINT). ELINT, which consists primarily of enemy radar emissions, was needed by the operational commands for jamming or electronic countermeasures. SAC, for example, was obtaining RB-50G electronic reconnaissance aircraft and the USAF in Europe (USAFE) was getting RC-54 aircraft for the same purpose. The commands also established forward electronic analysis units for on the spot analysis of radar data.(16:20) The creation of a command indigenous ELINT capability separate from the USAFSS overall SIGINT capability fragmented the Air Force SIGINT world. In fact the Air Force created a Special Security Officer system for handling the massive volume of SIGINT data.(16:Series B)

Meanwhile entire new collection vistas were opening up for the Air Force as the space age unfolded. In 1952 two major intelligence studies were conducted on "means to increase our intelligence on the Soviet Union" and the "Beacon Hill Project." Both studies were concerned with applying emerging technologies to the Soviet collection problem. Chapter 11 of the Beacon Hill study concerned itself with new "reconnaissance vehicles" including space satellites.(17:37) New, extremely long focal length, cameras, known by the codename Daisy Mae, were being looked at for use in aircraft, ballons and space satellites.(17:38)

The Gopher Project was specifically devoted to the study of high altitude ballons for reconnaissance. However Gopher research and development was slowed down on "the belief that if a similar effort were expended on another system, perhaps a guided vehicle, superior results could be achieved." But no "competing system seem(ed) likely for development in the next five or six years."(17:39) Presumably guided vehicles included high altitude aircraft, like the U-2, and space satellites.

A Project Rand television camera, for eventual use in a space satellite, was being studied during this period. The tempo for development of such a system picked up after General White, the Air Force Chief of Staff, established a requirement for it. However results of a television test did "not appear too hopeful considering that the satellite (would) only be used for search reconnaissance."(17:41) Basically the resolution of the resulting pictures was so poor that it was impossible to tell what was being looked at. Never-the-less the Air Force continued to aggressively search out new photographic intelligence (PHOTINT) means of covering the Soviet Union as the U-2 shoot down in 1959 makes clear.

By 1953 the Daisy Mae PHOTINT Project became operational, under the codename Pie Face, and installations were being looked at for ballon reconnaissance launch and recovery.(17:41) In 1958 the satellite program began to bear fruit. Launch dates were set for a system know as Pied Piper

according to an article in Aviation Week. (18:18-19)

The high-tech pied piper has continued to lure Air Force intelligence since the rapid proliferation of new strategic collection systems in the 1950s. Newer and more sophisticated strategic systems enter the inventory each year. But like tactical targeting, tactical collection has not kept pace. More importantly the basic air intelligence organizational architecture that existed in WWII remains essentially unchanged. This is true both at the Hq Air Force level and in the operating commands.

A look at the key Air Force operating command in Europe, USAFE, is instructive. As we learned earlier General McDonald never did establish a WWII Air Intelligence Command in the US Strategic Air Forces (USSTAF). As a consequence in 1988 air intelligence in the USSTAF's successor command, USAFE, is as fragmented as it was prior to McDonald taking over in 1944. A cursory glance at the USAFE organization chart today reveals no major architectural changes from the RAF model that McDonald inherited in 1943. Essentially it is still being used despite almost 50 years of history and a technological revolution.

The USAFE Deputy Chief of Staff for Intelligence (DCS/I) is nominally the Senior Intelligence Officer (SIO) responsible for supporting the senior USAF Commander in Europe -- the Commander in Chief (CINC) of USAFE (who in his NATO role as Commander of Allied Air Forces Central Europe

will be responsible for the bulk of the overall air war in Europe). The WWII experience, discussed in Chapter II, makes it clear that the DCS/I's ability to accomplish this task will be hampered by his lack of control of all air intelligence assets. He does own a substantial analytical and targeting apparatus. But SIGINT assets are under the control of a separate USAFE DCS for Electronic Security whose command chain is "stovepiped" back to the ultimate control of USAF Electronic Security Command Headquarters in San Antonio, Texas. ESC Hq, as was pointed out earlier is, is further removed from Air Force control by its operational subordination to NSA. A similar situation exists for USAFE human intelligence assets whose stovepipe is back to Washington, D.C. The DCS/I does control Air Force PHOTINT. However his primary photo intelligence organization is located 70 miles away from the DCS/I's targeeters and analysts, making synergistic interaction almost nonexistant. A similar situation exists in the Pacific Air Forces. There is no reason to believe that this fragmented oranization will have any more luck finding center of gravity targets than Army Air Force did in WWII. The Air Force experience in the Korean and Vietnam wars further verifies this judgement as we shall see in Chapter IV.

POSTWAR PERSONNEL AND TRAINING PROBLEMS

Air Force Intelligence leaders planned to maintain a

large high quality standing force in being following WWII. In fact they believed "National security require(d) that there be no retrenchment of air intelligence, but rather that it's collection and evaluation be expanded and improved."(19:2) Therefore the Army Air Force A-2 wanted "a strong Air Intelligence Corps of able, specialized, regular officers and a well trained Air Intelligence Reserve, with as many as 50% of the officers (holding) flying ratings.(19:2-3) A total of 3,358 officers and 6,358 enlisted men (of whom 50% were reserves) were forecast as being required. This included 214 active duty officers and 564 active duty enlisted personnel in Army Air Force Hq.(19:4-6)

Just the opposite occurred. The end of the war brought a mass exodus of personnel from the Army Air Force. In fact in the Counter-Intelligence Corps "not one single wartime ... agent elected to stay on active duty after the war."(20:42) Air Force Personnel compounded the problem by making no effort to specifically keep experienced intelligence personnel in the Army Air Force. The drawdown was so severe that by June 1946 Hq Army Air Force A-2 had gone from 1195 personnel to 366, a 70 percent cut.(21:Tab A) As one Army Air Force Colonel said at the time "The Air Intelligence System that had taken almost 4 years to build and perfect fell apart in a matter of months."(21a:16)

This massive collapse was the begining of a postwar personnel roller coaster air intelligence has ridden up to

the present time. The scenario has become predictable. Each time a war has come along intelligence has been rapidly built up. When the war ends it is severely depleted. For example "as a result of the cold war and Korean crisis the demand increased for intelligence information to the point that it (was) necessary to request (significant numbers of) additional personnel" in the Hq USAF Directorate of Intelligence.(22:1) The "Targets Division increased substantially in personnel strength" to "38 officers and 208 civilians" in 1950.(23:1) It grew further the next year to an authorized strength of 74 officers and 551 civilians.(24:2) In fact the Air Force became so desperate in 1952 that "due to the critically short supply of personnel for intelligence assignments, arrangements were made to authorize direct appointments" of officers into intelligence.(25:12) This move is reminiscent of the WWII mass induction of officers into air intelligence which resulted in the quality problems mentioned earlier.

However as the Korean War ended the intelligence personnel roller coaster began a rapid descent. By June 1953 "the (Hq USAF Directorate of Intelligence) Deputy Director for Targets suffered a substantial reduction."(26:1) A similar situation occurred during the Vietnam era. The net result of these precipitous personnel drawdowns and expansions was an inexperienced intelligence corps just when the Air Force needed quality intelligence most, during a

shooting war.

Personnel quality naturally suffered. As one post-WWII intelligence leader said, when quality intelligence officers left after the war "They left little will and testament to preserve the intelligence story for the peacetime Air Force."(7:1) Some of the highest quality men Army Air Force Intelligence brought on during the war were "older men who had left responsible positions in business and industry to serve with the Army. With the cessation of hostilities, these men were anxious to return as soon as possible to their civilian occupations."(21a:16) This gutting of air intelligence quality caused serious problems in the postwar period. As an officer attending the Air Force Air Command and Staff School said in 1949, " until definite steps are taken to overcome this quality problem, we run into the danger of repeating our past (WWII) mistakes of allowing the USAF Intelligence System to be decadent and ineffective."(27:20) The same officer was worried that "Insufficient prestige and lack of recognition have tended to discourage competent qualified officers from seeking intelligence assignments."(27:31)

A mature training mechanism could have minimized the impact of massive influxes of personnel and also contributed to improved personnel quality. Unfortunately air intelligence training after WWII suffered from the same organizational uncertainty as the larger Army Air Force

Intelligence community. The centralization impetus was also the primary cause of the training uncertainty. It led to the discussion of "integrated intelligence schools."(28:1) There were plans for "all Army Air Force colleges ... (to) include appropriate combat intelligence instruction."(28:3) But it was thought that specific intelligence courses, such as the photo interpretation course at Lowry Air Force Base (AFB), Colorado and the Special Staff School Intelligence Course at Orlando, Flordia would go away.(28:1)

The Special Staff Course didn't go away but it did move to Craig Field, Selma, Alabama in 1946, where it was placed under the Air University. The school had trouble getting started because of the big postwar drawdown. For example it sent 56 students to a course to prepare them to be instructors in the school. But at the end of the course 22 of the officers were "released from the service ... due to the Army Air Force reduction in force."(30:3) Throughout it's existance the school suffered from a high turnover of personnel and a poor selection of students. Despite these problems the school established an Air Intelligence Staff Officer's Course, a Photo Intelligence Officer's Course, a Radar Intelligence Officer's Course and something called a G-2/G-3 course.

Another problem for the Craig Field school was the establishment in 1947 of another intelligence school under the newly created Air Training Command. The new school was

first set up at Keesler Field, Mississippi and then moved to Lowry AFB, Colorado. It's intent was to provide generalized basic intelligence training to officers. But soon a special study was conducted to examine duplication in the two schools.(31:1-4) Attempts were made to eliminate overlap but a review by the Hq USAF Director of Intelligence in 1948 still showed "needless duplication."(7:1) As a consequence the Craig Field operation was closed down. However in 1950 the Staff Officer's Course was reinstituted at Maxwell AFB, Alabama.(32:12), only to be closed down again in 1954.(33:26) Interestingly an Intelligence Staff Officer's Course was opened under the overall management of the Air Training Command at Bolling Field, Washington, D.C. in 1983.

Prior to the reestablishment of the Staff Officer's Course the only Air Force training avialable for intelligence officers was basic courses for radar and photo interpreters, SIGINT officers, operational intelligence officers and targeting officers. For a brief period the radar and photo schools were located at Sheppard AFB, Texas. However eventually they were moved to Lowry AFB where the operational and targeting courses were located. SIGINT training was kept separate at Goodfellow AFB, Texas. Recently all basic intelligence training was moved to Goodfellow AFB. As mentioned earlier staff intelligence training is conducted at Bolling Field along with a course for senior intelligence officers destined to be intelligence directors.

The co-location of all the basic air intelligence schools at Goodfellow creates interesting possibilities for joint training and joint understanding in the highly fragmented air intelligence system. The reestablishment of a staff air intelligence course and the creation of a senior intelligence officer's directors course is an even more promising development. It has the potential to create a body of thought and discussion that could lead to the development of new air intelligence ideas, philosophies and perhaps a coherent doctrine.

POSTWAR AIR INTELLIGENCE DOCTRINE

The vast air intelligence experience gained in WWII was never translated into a coherent doctrine. This lack of a "will and testament to preserve the intelligence story"(7:1) has haunted air intelligence for the last forty years. It has had a profoundly negative impact on attempts to build a coherent intelligence architecture and quality personnel and training structure. As a result of this failure, in 1950, Major General James Walsh, the head of Air Force Intelligence in the late 1950's, could say "I believe it is not unfair to state that as professional intelligence people we have been disappointingly slow in understanding the nature of the pressing problems which are confronting us."(15:39) The lack of impetus and direction more than 13 years after the end of WWII is attributable, in large part, to the failure to

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echelon. Thus Hq Army Air Force Intelligence could not command the intelligence organization of an operating command, for example. Likewise this would make it impossible for an operating command intelligence organization to command a wing or group intelligence organization. Implicit in this dictum is the idea that intelligence is basically a staff function. 45-1 fails to recognize the reality of the highly operational nature of intelligence.

It is certainly arguable, as General McDonald showed, that intelligence analysis and targeting are, in fact, operational. But the "function of command principle" precludes this possibility. Analysis and targeting are considered staff functions, thus leaving them disconnected organizationally from the collection function. Collection didn't fit neatly into the "function of command" principle therefore doctrinally collection organizations were not linked to the larger intelligence organizations. As we have seen that resulted in them becoming separate organizations not tied by command to anyone but themselves. Other than this the major basic flaw in 45-1, as in 1-40, is that it did not adequately establish a relationship between air intelligence doctrine and overall air doctrine. It could have been written for the Army or Navy.

In 1956 a Colonel in the Air War College wrote, "We still don't have a clearly enunciated Air Intelligence

philosophy or an officialy established Air Intelligence doctrine geared to air power"(20:43) Various Air University intelligence course texts for staff officers had been published since 45-1 in 1946. They loosely covered the intelligence mission but were not intended to be doctrinal in nature. A Handbook For Intelligence Officers, Air Force Manual 200-3, was published in 1953. But it was basically a listing of intelligence responsibilities and not a doctrine publication.

It wasn't until 1974, almost 30 years after WWII, 21 years after Korea, and one year after the American withdrawal from Vietnam, that the USAF published it's first official intelligence doctrine regulation. Air Force Regulation 200-15, Air Force Intelligence Functional Doctrine, although flawed, was long overdue. It's key problem, as with all the similar documents that proceeded it, is that it fails to specifically link air intelligence with the unique requirements of air power.

Another of 200-15's key problems, even in the context of the broad intelligence doctrine it does cover, is that it doesn't provide organizing principles upon which to base future architectural decisions. It does discuss a "Principle of Cooperation," mostly in terms of external players. But it doesn't provide guidance as to how air intelligence is supposed to avoid fragmentation internally. It even

introduces a concept of "Intelligence Fusion" but it does so primarily in the context of "highly automated" technology. The organizational, personnel, and training implications of fusion are never adequately covered. The 200-15 articulated "Principle of Flexibility" actually contributes to the continued fragmentation of air intelligence by proclaiming "flexibility in collection can be achieved by insuring access to the largest possible number of <u>independent</u> collection means."

Chapter 5 of 200-15, "The Intelligence Cycle," is seriously flawed and fails to draw on a wealth of historical experience. Instead of reflecting the highly interactive intelligence process that evolved in the course of the last three American air wars, it describes intelligence as a disjointed linear process. It's description of the "production phase" of the intelligence cycle specifically leaves a great deal to be desired. It never adequately breaks down the complex interactive nature of production which begins with the simple interpretation of collected data, proceeds with the relatively complex extrapolation of this known data into estimates of enemy action and ends with a decisive targeting strategy.

The followup to target strategy development, shaping the commander's objectives, such as McDonald did in concert with Geneal Spaatz, is not adequately covered. 200-15 Does talk

about the importance of "Objectives" under principles and addresses "Dissemination" in the "Intelligence Cycle Chapter" but it never covers the subject holistically, particularly in the context of rapid paced air warfare.

The last paragraph of 200-15 "Intelligence Management" begins to get into the issue of organizing principles, but only in the broadest way. In stating that "management of intelligence organizations must conform to centralized overall direction, coordination and control and decentralized execution," it restates a long standing axiom of broad Air Force doctrine. Unfortunately 200-15 doesn't go much beyond this broad organizing principle.

It took Air Force Intelligence ten years to produce a another quasi doctrinal document like 200-15. This was Air Force Regulation 200-1, Air Force Intelligence Mission and Responsibilities, dated June 1984. In terms of a clarifying doctrine 200-1 is a step backwards. Like each doctrine or quasi-doctrine publication of Air Force Intelligence it fails to tie air intelligence directly to air power. It also fails to mention the targeting function under the "Production of Intelligence" section. Targets does get mentioned in the "Applications Section" but what might be loosely construed as a center of gravity discussion gets less than one sentence. "Intelligence Management" gets very little treatment and no organizing principles are are listed. 200-1 does say that

organizing principles are are listed. 200-1 does say that the development of intelligence doctri s a Hq USAF ACSI responsibility. With the publication of only one air intelligence doctrine regulation in the history of the USAF, 200-15, this is a responsibility that needs to be seriously addressed.

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CHAPTER IV --THE AIR INTELLIGENCE EXPERIENCE IN KOREA & VIETNAM

The air intelligence efforts in Korea and Vietnam would have greatly benefitted from the development of a coherent doctrine. Many of the organizational and training lessons of WWII had to be relearned because of a failure to do this. Korea and Vietnam were obviously much different wars than WWII. As the landmark "Barcus study" on Korea said, "The problem posed by these Asiatic Armies calls for a revision to (air) doctrine"(1:14) But despite the fact that the wars were different the broad demand on intelligence was the same; to find the center of gravity. Since these conflicts were not strategic wars in the same sense as WWII the center of gravity was tactical in nature. The tactical center of gravity basically boiled down to destruction of the enemy's field army. The Air Force's fundamental role in this effort was interdiction of the enemy's lines of communication.

AIR INTELLIGENCE IN KOREA

But interdiction against what? None of the postmortems on Korea answer this question. But the Barcus report does propose a solution; "equipment must be developed which will enable our aircraft to seek out and attack the enemy effectively, even when he is moving, dispersed, by night as well as by day, across country which offers good

cover."(1:14) This "equipment" fix is still being vainly sought 37 years later by the technorapture advocates of such systems as "Assault Breaker," "The Precision Location and Strike System," and an entire family of high-tech hardware. Some experts even think that human intelligence analysis and targeting can be largely replaced by computer derived artificial intelligence contained in such packages as the "Joint Tactical Fusion Program."

But even the Barcus report, in its more lucid moments, states that the intelligence problems of Korea are more organizational and human than mechanical. For example the report states, "In view of the recurring serious instances of failure to detect the presence of tactically decisive concentrations of enemy ground forces, it must be considered that the command use of air reconnaissance, including the priority production and dissemination of intelligence ... was ineffective."(1:35)

As in WWII this "ineffectiveness" was caused by fundamental architectural and personnel problems that had their roots in the lack of a clear understanding of the role of intelligence. This last point is underscored by the Barcus report when it says, "there was a tendancy to expedite intelligence to higher headquarters at the expense of the lower units."(1:36) This inability to prioritize reflected the lack of a clear doctrine which further led to "a basic

misconception of the mission of intelligence."(1:Vol IV, 16)

And doctrine effected architecture. Air Intelligence was constantly reorganizing at all echelons in an attempt to fix the combat intelligence problem of finding and fixing fleeting targets. At the start of the war the "misconception of the role of intelligence in combat operations appears to have resulted directly from the location of the intelligence function under the Operations Section of both the Far East Air Forces (FEAF) and 5th Air Force staffs. Here again, as in the case of FEAF Bomber Command, evidence is furnished that an intelligence staff section cannot perform it's specialized function acceptably as long as it is subordinated to the operations function. Intelligence in 5th Air Force did not begin to accomplish it's mission effectively until it was separated from, and made co-equal with, the operations function."(1:Vol IV, 17)

But even after intelligence was made co-equal with operations it had internal architectural problems which plauged it. Fragmentation of collection, analysis and targeting continued to be a problem. "There was no master plan for the systematic development of intelligence by the utilization of intelligence" from multiple collection sources.(2:Vol 2, 15) In fact it wasn't until almost 1951 that "the Photo Intelligence and Target Section of 5th Air Force demonstrated the long sought capability of working

together."(3:56) It wasn't until over a year after the war started that photo interpreters in a "specialized system" gained access to other sources of intelligence to help them more fully exploit PHOTINT.(1:Vol IV, 16) "Because of these random and uncoordinated procedures" air intelligence "failed to fully develop" center of gravity targets.(2:Vol 2, 15)

The fragmented air intelligence structure seemed to operate on an ad hoc, day to day basis without even the fundamental understanding that it was supposed to be searching for something larger than tomorrows expedient tactical targets. As a FEAF postwar report said; "one fundamental requirement for execution of any successful military campaign is knowledge of the enemy."(2:Vol 3, 8) However intelligence never provided air commanders an understanding of the "oriental militarist" and therefore "failed to predict the enemy's countermeasures" to air attack.(2:Vol3, 8) "If a more extensive reasearch effort had been devoted to the preparation of enemy reaction to ... air attacks, a more accurate appraisal of the value of target plans would have resulted."(2:Vol 3, 8)

Consequently targeting, the ultimate aim of air intelligence, was a disaster. The principal targeting authority, which was chaired by an air intelligence officer, was the General Headquaters (GHQ) Target Group. Of the first 22 targets selected by GHQ Targets "four of them did not

exist."(1:IV, 5) Later a cross check was made of all of the GHQ targets and it was found "that approximately nineteen percent of the entire selections of the Group did not exist and a substantial number of the remaining targets were of doubtful validity."(1:Vol IV, 6) "The principle reason for these fantastic selections ... (was) that the GHQ Target Group was unfamiliar with time honored intelligence principle of confirming reported information by checking several sources."(1:Vol IV, 6-7) Incredibly even after these problems were known single intelligence source target selection continued. As the Barcus report says; "the pattern of invalid targets is not restricted to the early selections of the Target Group, but is well distributed throughout it's several lists of targets."(1:Vol IV, 7) Eventually FEAF took over most responsibilities for targeting. This led to major improvements. But even then target "planning was generally on a short range basis, rather than the detailed analysis required for a major war."(2:Vol 3, 6)

This short range perspective resulted, in part, from serious personnel and training problems. "The most pressing problem encountered at the outset of the Korean War was the lack of qualified intelligence personnel to cope with sudden need for combat intelligence on a 24 hour basis. All functions but those of an immediate nature ceased ..." (4:133) This personnel problem lasted throughout the war.

Intelligence personnel were "deficient in numbers and qualifications."(2:Vol 2, 100) For example shortages of "qualified photo interpreters (both officer and airmen) constituted a serious limiting factor to operational capabilities ..."(2:Vol2, 104) Rank imbalances at all levels and poor assignment practices were also a continuing problem. Perhaps most important, many intelligence personnel simply weren't qualified to be in the business. For example, at the 67 Tactical Reconnaissance Wing "of the airmen assigned 261 had a Courts Martial conviction or an Article 15 on their records, 123 were at the 10 (lowest) skill level, and 136 had a below IV (lowest acceptable) average aptitude test. This was a total of 520 or 21% of the total airmen personnel manning."(2:Vol 2, 107)

The personnel problems were exacerbated by poor training. "The Korean campaign provided more than enough evidence to bolster the contention that neglect of intelligence training during peacetime is a serious mistake, if that point had not been painfully clear at the outset of WWII. The Far Eastern Air Force's were woefully lacking in competent intelligence officers and airmen. The quality of instruction in intelligence schools must be improved ..."(1:37)

Because of the problems with stateside intelligence training "local action was taken to alleviate the

situation."(2:Vol 2, 107) A FEAF course in photo interpretation was set up early in 1952 at Camp Palmer, Japan. But even this "supplement" failed to completely solve the quality and numbers problem faced by the Air Force in Korea.(2:Vol 2, 108)

The air intelligence experience in Korea is remarkably like that of WWII in terms of architecture, personnel and training and doctrine problems. Despite very different circumstances and the lessons of WWII the Air Force continued to neglect intelligence, at least at the tactical level. As a consequence the search for the center of gravity was as futile in 1952 as it was in 1942.

AIR INTELLIGENCE IN VIETNAM

Only 12 years later against other "oriental militarists" in Vietnam air intelligence had a new opportunity to search for the center of gravity. But it had even less success in this venture than it did in Korea. Throughout the American involvement in the war the USAF never decisively struck at the enemy tactical center of gravity, his field army. In 1972, seven years after the big American buildup began and near the end of the direct US involvement in the war, the principal Air Force targeteer in Vietnam said, "Striking the fleeting target remained a primary problem area. The normal nominate, frag (task aircraft), and strike cycle which

requires up to three days were not adequate to get the job done."(4:16) A 1965-66 report from General Rockly Triantafellu, an early Chief of Air Force Intelligence in Vietnam is strikingly similar. In his end of tour report General Triantafellu says, "The pace of the air war and the increased number of combat air units exceeded the ability of intelligence to optimize the reconnaissance and strike operations."(5:3) In other words air intelligence STILL had not caught up with air power.

Once again air intelligence had to resort to an ad hoc, make it up as you go along, approach to operations. As Triantafellu said, "The around the clock, seven day a week intelligence operation required all resources to just stay one day ahead of the air war. There was very little reserve capacity to study the situation and develop the great idea. But development of the "great idea," definition of the center of gravity, is of course the principal task of air intelligence.

As we have seen development of the great idea is difficult when there is no coherent doctrinal approach. When asked if there were standardized air intelligence targeting procedures in Vietnam one of the principal officers involved in the effort said, "There were what I would call some verbal procedures - things that were passed on from one person to another; but at the time I arrived over there, there were no

standard operating procedures written."(6:8) Not surprisingly he went on to say, "It was almost impossible to come up with a systematic approach to interdiction or even attrition."(6:8)

And, as in Korea, interdiction became the name of the game. Interdiction in Vietnam generally boiled down to the brute force destruction of "choke points" such as bridges and river fords. It was hoped that this would deny the enemy use of his logistic lines of communication. This broad target strategy appeared to evolve with very little intelligence to either cause it's formulation or to verify it's ongoing success. As a consequence it was not widely understood, even by operational leaders. As one senior officer involved in integrating intelligence into strike operations said, "... with respect to ... a strategy that people understood, one of the things that was never achieved in Southeast Asia while I was there was an adequate understanding on the part of strike wing commanders and reconnaissance wing commanders involved in operations just exactly what strategy was."(7:37) Strategy formulation was difficult because of a lack of solid intelligence. As a former Chief of USAF Targets in Vietnam said, "... we always have the problem of getting good hard intelligence upon which to base our targets."(8:2)

Without good hard intelligence upon which to formulate a target strategy any approach to planning air operations

became feasable. For example early in the war the number of aircraft available was the chief criteria for deciding which targets to strike. According to a senior targeteer if the operations planners "had 20 flights of airplanes ... they would want 20 targets to fit the 20 flights of airplanes. In some instances this gave us less than a 10% chance of destroying the target."(9:2-3) Later in the war ordinance became the driver of targets. Apparently the Air Force " ... got to the point after a while, that (it) didn't select targets based on their value, (but) selected the targets to fit the weapon."(9:8)

Even when the general concept of an interdiction campaign more or less became the accepted strategy, the selection of specific targets within the campaign was driven more by preconceived ideas than hard intelligence. For a period bridges seemed to be the "popular" target regardless of their true value in a tactical center of gravity context. One disgruntled targeteer demonstrated how absurd this policy was through a ruse, "... in one case we took a picture of the Golden Gate Bridge, and superimposed it over some photography of North Vietnam and put it out in the boondocks with no roads leading to it and found several operational planners who wanted to go out and strike it immediately because there was a bridge standing erect. We told them, "there are no roads going to that particular bridge." They replied, "It

doesn't make any difference it's a lucrative target."(7:26)

In other cases internal politics were more important to targeting than intelligence. The B-52 heavy bomber "Arc Light" strikes, for example, were often tasked in response to US Army politics according to a senior Air Force targeteer serving in the Military Assistance Command, Vietnam (MACV) Hq in Saigon. Apparently Army officers at MACV made there decisions on logic such as "Well General so and so in I Corps (of South Vietnam) hasn't had any strikes for a couple of weeks so lets' give him a couple tonight."(10:12) According to the Air Force targeteer "As often as not, the intelligence recommendations were completely ignored (emphasis added by source)."(10:12)

As in WWII and Korea the fragmentation of the intelligence structure was the key contributing factor to the targeting debacle. It was very difficult to construct a convincing center of gravity targeting campaign because of the multitude of players involved in the targeting business. In South Vietnam MACV was the chief targeting authority. Strikes in the South often had to be further coordinated through South Vietnamese political and military authorities. The out country, or North Vietnam, Laos, and Cambodia wars, were the responsibility of the Air Force in the form of 7th Air Force Hq in Saigon and the Navy's Task Force 77 operating in the Gulf of Tonkin. The US Embassy in Vientaine, Laos

often had to be coordinated with prior to air strikes in that country. The quality of coordination between the Navy and Air Force concerning air strikes varied throughout the war. But the split responsibilities and relative independence of operations tended to minimize rather than maximize the coherence of strikes against prospective center of gravity targets. Players external to the war; the Joint Chiefs of Staff and other Washington authorities (including the President and his staff), the Commmander in Chief Pacific, the Commander in Chief Pacific Air Forces, and the Commander in Chief Strategic Air Command also had a say in the conduct of the air war. Each of these players had their own intelligence and targeting staff with their own agendas and interests.

Despite this targeting fragmentation it seems likely that if 7th Air Force had managed to develop a coherent decisive targeting strategy, backed up with reasonable intelligence, then it could have set the air war agenda. McDonald's example of proving oil was the center of gravity despite the targeting and political fragmentation of WWII is a case in point. The stakes were certainly higher in the earlier war but good solid intelligence provided the "selling power" necessary to win the center of gravity argument.

Because of the internal architectural fragmentation of Air Intelligence in Vietnam a similar "selling effort" was

never convincingly made. Colonel H.P. Smith (later a Major General) was Director of Targets at 7th Air Force during the heigth of the bombing campaign. He provides us with the key reason for this failure, "The fact is that in 1967 and 1968 in 7th Air Force Intelligence there was not nearly as much fusion of all source intelligence as there should have been."(11:26) The continuing functional division of the Air Force into separate channelized collection and analytical disciplines made all source fused production of intelligence extraordinarily difficult.

The first 7th Air Force Deputy Chief of Staff for Intelligence, General Traintafellu, attempted to overcome this functionalist approach and get the air intelligence community to work as a fusion team. But as he said, "It was ... the time it took to convert the available intelligence specialists with their varied experience into an effective combat intelligence organization, that prevented maximizing the full capability of the Air Forces ..."(5:6) The fact is the "specialists" actively resisted the General's efforts to break down the functional approach. Therefore he took extraordinary steps to create a holistic "combat intelligence organization."

For example, Triantafellu took his brightest young officer, Lieutenant Colonel Jim Enney (later a Major General), and put him in charge of specially created hybrid

targeting/PHOTINT team known as the Target Intelligence Center (later called the Target Development Center). The center was designed to fuse all source intelligence under the firm hand of Enney, a targeteer. Enney, in a interview after his Vietnam was completed, correctly explains that fusion was nothing new (as we have seen McDonald had his people do it in WWII). But as he said, "I already told you that there was nothing new learned down there, somebody knew it and forgot it ..."(12:10) He proceeds to expand on this doctrinal failure, " One of the most important lessons ... relearned was the absolute requirement that personnel be mission-oriented. We had people over there who thought that you shouldn't tell a photo interpreter anything about what he was looking at because he would have started seeing things on a target. That is one school of thought, but I don't subscribe to it. Personnel must continually be provided available data on the war effort and the various short and long term air campaign objectives. If a guy understands that he does a much better job."(12:10) Enney also was a strong believer in all source analysis. He says, "In our Target Development shop we did what General Triantafellu likes to call fusing, although because of security problems, i.e., we didn't have that many guys cleared (for SIGINT), we had to go over to the warning van to use (SIGINT). The (SIGINT) information was sanitized and we were able to use it -- we

would only say there was a lot of activity in a certain area and not indicate where the information came from."(12:10-11)

Unfortunately after General Traintafellu and Lieutenant Colonel Enney left Saigon the PHOTINT function became separated from the targeting function again. Colonel Leonard Bull the 7th Air Force Director of Targets in 1969-70 describes the situation, targeting "could have been more effective if we had had our photo interpreters working more closely with analysts. We were separated there and you lose the face to face exchange where the analyst can guide the photo interpreter a little ..."(8:13)

Lieutenant Colonel David Blackbird (later a Colonel) a senior targeteer in the period immediately after Traintafellu and Enney left (1966-67) explains the functionalist problem in much the same way, it "Became more and more clear to me ... that the people engaged, particularly in photo exploitation, simply must have contact with all of the information in their particular area, including strike operations - whats being struck, the rationale behind it, what enemy activities or lack of activities motivated a particular strategy for a strike.(7:20) But as he says, "I talked to a number of (PHOTINT) people engaged in the target development process who were what I will call **source focused.** They simply didn't believe that a target existed unless they could see it on a photo."(7:20) He points out that the

PHOTINT leaders were ignoring SIGINT for example. Blackbird "discovered that, though instructions had previously existed with respect to the exploitation of SIGINT for targeting, this had fallen into disarray and disuse."(7:20) In other words air intelligence in 7th Air Force had stratified along functional lines much the same way it had been in 1943 and 1953.

In fact it became so stratified that the lower level workers in the functional areas began to end run the formal functional structure in an attempt to get the job done. For example junior officers and enlisted personnel in 7th Air Force's primary PHOTINT organization, the 12th Reconnaissance Technical Squadron, were taking "hot" photographs with lucrative targets on them directly to the targeteers who were integrated into the strike decision making mechanism, in an effort to get timely attacks made. As Blackbird says, "This of course wired completely around the entire (functional) organization ... but the structure is ... such that if you're going to act very rapidly ... you simply have to work out some system for conveying information ..."(7:40-41) The functionally oriented air intelligence "system" was just simply unable to rapidly convey the information. And the information that it had to convey was not all source in nature. As General Traintafellu said, the air intelligence system was incapable of keeping up with air power.

The only air intelligence organization that appeared to come close to meeting the timeliness and accuracy requirements of tactical air power in Sotheast Asia was Task Force Alpha. Task Force Alpha was a hybrid organization created in Thailand in 1967. It was specifically responsible for monitoring acoustic and seismic sensors implanted along North Vietnamese lines of communication in the Laotian panhandle area known as Steel Tiger. This program, with the overall code name Igloo White, was designed to detect logistic movement along the trail network in Steel Tiger. Task Force Alpha fused the sensor data with human intelligence reporting (primarily from special teams located along the trail net) plus PHOTINT and SIGINT. Intelligence and targeting personnel would then provide the resultant all source product directly to operational personnel co-located in Task Force Alpha, known as Sycamore Control.

Sycamore Control had the authority to directly task aircraft attacks on the intelligence derived targets. This closed loop process reverified the WWII lesson provided by Spaatz and McDonald that intelligence and operations must be part of a seamless process. Of course given the tactical nature of the war in Southeast Asia the interaction of operations and intelligence had to occur lower down the chain of command, but the fundamental principle is the same. As the Chief of Targets at Task Force Alpha said, "I think that

the need to have a good intelligence organization, which was essentially represented by Task Force Alpha, co-located with a control element (Sycamore Control) is an absolute must."(10:8) "Good intelligence" was provided by having photo interpreters integrated into Task Force Alpha so that face to face discussions could occur between targeteer, analyst and photo interpreter. Unfortunately the Task Force Alpha story was the exception to the rule of a fragmented functionally organized air intelligence architecture in Southeast Asia.

Clearly centralized command of air intelligence was required to fix the problem of fragmentation. General Triantafellu's "effective combat intelligence organization" or General McDonald's "Air Intelligence Command" were required to bring cohesion and focus. As the senior targeteer at Task Force Alpha said, "I do feel that there are more steps we can take toward the integration of more sources of intelligence at a single focal point under good management. I think if we achieve that sort of objective, pulling all of our intelligence into a central point in the combat theater for target development purposes and assessment purposes we will improve our targeting."(10:17) Unfortunately a single air intelligence and targeting command focal point was never established and still does not exist within the American Tactical Air Forces.

Air intelligence in Vietnam suffered from many of the same personnel and training difficulties that were seen in Korea and WWII. Targeteers, the most critical element in wartime intelligence, were particularly ill equipped to handle their responsibilities. There was no formal targets school during this era and no "manuals that tell a person how to select targets."(11:30) Since most of the targeteers came from the Strategic Air Command where fixed large target complexes were the norm, they were not prepared to deal with the highly mobile ambiguous targeting enviornment of Southeast Asia. Consequently there was a steep learning curve involved. As Colonel Bull said, "We had very few qualified targets officers. In fact, there was one time when we had just one individual with weaponeering training. Most of the people we had were entry level people, mostly from Strategic Air Command Wing Intelligence programs."(8:1)

The air intelligence training apparatus was as poorly prepared to handle Vietnam as it had been Korea. The Air Intelligence Training Center had to make "... significant changes in course materials as a result of lessons learned in Vietnam."(13:1) In the meantime intelligence operations suffered. As one young officer said, "... I realy don't think the people, including myself, were properly prepared for these assignments (to Vietnam)."(14:11-12)

Air intelligence in general was not prepared for

Vietnam. General Hunter Harris, the Commander in Chief of Pacific Air Forces from 1964 through 1967 saw the performance of air intelligence from a front row seat in the early days of the war. He commented in 1967, two years after the begining of major air operations, that "adequate intelligence is still lacking."(15:63) In 1973 as America began its pull out of major forces from the war it was "still lacking."

The most remarkable aspect of this failure is that it stemmed from the same basic causes that have existed since WWII. The architectural, personnel and training, and doctrinal problems simply were never fixed.

Carl Kaysen's 1947 comments in CHAPTER II, for example, about intelligence architecture in WWII are instructive. Its worthwhile to remember his discussion of the Allied Central (photo) Interpretation Unit at Medmenham, in which the commander thought "that interpreters should be kept free of contamination by other intelligence information, less such information bias their interpretation." Contrast this with the strikingly similar comments by Jim Enney that "We had people over there (in the 13th Reconnaissance Technical Squadron) who thought that you shouldn't tell a photo interpreter anything about what he was looking at because he would start seeing things on a target."(12:10) The basic functionalist "source focused" mindset that led to a fragmented air intelligence organizational architecture had

not changed at all.

Nor were air intelligence personnel any more well prepared or trained to fight in Vietnam than they had been in Korea. Recall the Barcus report claim that "The most pressing problem encountered at the outset of the Korean War was the lack of qualified intelligence personnel to cope with the sudden need for combat intelligence on a 24 hour basis. All functions but those of an immediate nature ceased ..."(1:153) Contrast this with General Triantafellu's comment that "It was ... the time it took to convert the available intelligence specialists with their varied experience into an effective combat intelligence organization that prevented maximizing the full capability of the Air Forces. The around the clock seven day a week intelligence operation required all resources to just stay one day ahead of the air war. There was very little time to develop the great idea."(5:III)

Great ideas are generally not created in a vacum. They come from the well-spring of focused thought that is contained in a coherent doctrinal foundation. This is particularly vital in the early chaotic stages of war when the fog and friction are most prevalent. The role of intelligence is to provide focus, to help formulate objectives, to find the center of gravity. But as each of America's modern wars has shown this is impossible without a

coherent air intelligence doctrine. As General Spaatz said, "air intelligence is unique" and therefore it requires a unique doctrine. But General Arnold's comment that "Our past concepts of intelligence needs were insufficient to cover the basic requirement of modern war," which sounds very similar to the Barcus Report comment on the Korean war that there was "a basic misconception of the mission of intelligence,"(1:Vol IV,16) indicates that such a doctrine was not available in the 1950s'. And by the 1960s'and 70s' "... things were still being passed from one person to another ... with nothing written..."(6:8)

CHAPTER IV NOTES

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CHAPTER V -- AIR INTELLIGENCE TODAY

The Air Force can't afford to go into the next war without an understanding of what the "air intelligence mission" is. It's well past time to "write" down basic principles to guide the formation of a coherent air intelligence system to meet future challenges.

In the postwar era strategic air intelligence received most of the attention while the tactical air intelligence world was a poor cousin despite the fact that we fought two tactical air wars during the period. Today there is a convergence of demands facing the tactical and strategic air intelligence worlds. Tactical air wars will still be primarily involved with finding fleeting targets, principally an enemy's logistic support and his field army. The change has come in the strategic world. Todays strategic counterforce targeting must increasingly concern itself with mobile targets such as the new Soviet Intercontinental Ballistic Missile the SS-25 and trainborne command posts. Therefore the broad principles which govern air intelligence doctrine in the tactical world will also be applicable in the strategic world. Thus the remainder of this paper, while primarily devoted to air intelligence support of tactical air warfare, will also have meaning for strategic air warfare.

AIR INTELLIGENCE CHALLENGES

The tactical air intelligence agenda for the forseeable future has been set by the evolution of US Army Doctrine. Modern Army Doctrine, which evolved in the 1970s' and matured in the 1980s', is known as the AirLand Battle. Army Field Manual 100-5, Operations, articulates the AirLand Battle doctrine in center of gravity terms. For example, it states that the essence of operational warfare "is the identification of the enemy's center of gravity - his source of strength or balance - and the concentration of superior combat power against that point to achieve a decisive success."(1:10) 100-5 goes on to say, "At any level (strategic, operational or tactical), identifying the enemy's center of gravity requires extensive knowledge of his organizational make-up, operational patterns and physical and psychological strengths and weaknesses."(1:180) Gaining this "extensive knowledge" is one of the primary tasks of air intelligence in the AirLand Battle.

According to 100-5 a major task of the Air Force in AirLand Battle is to strike deep against an enemy's forces as they come forward to the battlefield. These forces, commonly known as the second echelon, will be "delayed, destroyed or disrupted" by airpower in air interdiction or "follow-on forces attack's" before they can affect the outcome of the forward battle being prosecuted by United States Army forces against the enemy's first echelon.

The attack of follow-on forces is not a new Air Force

strategy. It was the basic approach in Korea and Vietnam. However, today's AirLand Battle doctrine and the follow-on forces attack targeting strategy were promulgated for a more urgent set of of reasons. The principal driver was the increasingly questionable credibility of tactical and strategic nuclear deterence in light of a massive Soviet buildup in nuclear forces. At the same time conventional striking power has improved by an order of magnitude because of technological breakthroughs in the area of microcircuits. The invention and dramatic improvements in the "chip" have led to the development of an entire new family of precision weapons and related delivery systems. Head of pin laser guided and electro-optical bombs and very accurate acquisition sensors have made the AirLand Battle doctrine and follow-on forces attack targeting strategy feasable. They have also placed tremendous new demands on United States Air Force Air Intelligence.

Air intelligence is the key imperative to success of follow-on forces attack. Only air intelligence can provide the center of gravity targets required. Army spokesmen have unequivically stated that the "linchpin ... to the entire follow-on forces attack operational concept, is accurate and timely intelligence on enemy forces ... "(2:131) Army Field Manual 100-5 also states that "collecting this perishable information requires intelligence from all sources, including tactical and strategic sensors."(2:131)

The basic task facing air intelligence is the definition of decisive center of gravity points of attack in near real time within a potentially massive and highly mobile follow-on force target set. This is no mean feat as air intelligence found in Korea and Vietnam. Even the highly regarded Isreali air intelligence system found this difficult to do during the 1973 Arab-Isreali war. On numerous occassions Isreali RF-4 reconnaissance aircraft shot photos of Eygptian supply columns backed up at various choke points in the desert. However before the photos could be processed, assessed and the information delivered to operational decision makers the Eygptian trucks had dispersed.

The US Army is attempting to improve on the USAF and Isreali record with a concept they call intelligence preparation of the battlefield. Intelligence preparation of the battlefield basically consists of getting ready now to fight the war. The USAF has not established a comparable approach. An Air Force Intelligence preparation of the battlefield approach could be broken down into three broad categories:

1. The first category might be termed one of **FOCUS**. This would consist of the peacetime definition of a precise enemy follow-on forces attack center of gravity. Today the conventional wisdom is that generic "tanks" in selected army formations are the center of gravity. However, given the large number of "tanks" in such theaters as Central Europe

this is no more likely to be more a center of gravity than generic aircraft production was in the bombing of Germany in WWII. Therefore a more detailed "tracing" process is required to pinpoint decisive vulnerabilities which might exist within a tank formation or army. Perhaps, for example, a key command and control node or logistics bottleneck.

2. The second category could be characterized as one of establishing a **PROCESS**. This is the requirement to construct in peace, crisis and war, a processing system to direct the collection of multiple sources of information on potential follow-on forces attack centers of gravity, rapidly fuse this data into a holistic air intelligence picture of the situation and then pinpoint potential centers of gravity for commander's interest or, in war, for attack. The conventional wisdom in the Air intelligence community today is that collection, analysis and dissemination are separate disciplines requiring separate organizational architectures. However air intelligence history and the tremendous complexities of the follow-on forces attack strategy demand a change to this approach. A change which recognizes that air intelligence is a highly interactive process demanding an operational orientation from the dissemination end of the intelligence cycle to the collection end. To be successful it requires an air intelligence command structure in control of the entire process and a continuing dialogue with flying and ground operational decision makers.

3. The final category might be termed **PEACETIME PREPARATION.** This basically consists of exercising the established air intelligence process in peacetime to insure its validity to meet peacetime air intelligence needs and to prepare a personnel cadre to operate in war. An unwitting, but active, partner in this effort is the potential enemy. Since he must exercise his forces in peacetime and since we have an active air intelligence apparatus which is charged with monitoring his activity the focus and the process can be tested constantly in near-real-time in the real world. Not only does this insure the validity of the air intelligence process and focus but it also insures that air intelligence personnel are being prepared to meet the demands of the follow-on forces attack strategy.

Unfortunately one of the few steps that air intelligence has taken in this direction has fallen by the wayside. This was the process known as Rapid Targeting Capability Europe, which was started by General Chuck Donnelly, former CINCUSAFE and his DCS Intelligence, General Lenny Perroots. It was an attempt to establish a joint Army-Air Force intelligence systems architecture to rapidly collect, fuse and nominally target, with strike planners, real world military exercise activity. Rapid Targeting Capability Europe was forwarded to Hq Army and Air Force in Washington as the 32nd Initative under the high visability Joint Army/Air Force Initatives Program established by the respective Chiefs of Staff. This

later program, agreed to in an Memorandum of Agreement signed by the Chiefs in May 1984, was designed to fix long standing problems through the establishment of joint doctrine and joint funding of programs. Certainly deep targeting of fleeting targets was a long standing problem worthy of resolution. It's still a problem. As the Joint Initatives study pointed out, "Field exercises (such as Rapid Targeting Capability Europe) on the rear area battle had revealed an acute need for more intelligence and target support for that facet of AirLand Battle."(3:70) In other words nothing has changed since WWII, Korea or Vietnam. However, despite this "acute need' initative 32 lies dormat at this time.

Clearly air intelligence must begin to work on intelligence preparation of the battlefield and it's concomitant rapid targeting problem. This problem paradoxically will be both simplified and complicated by the proliferation of technology that the AirLand Battle doctrine and follow-on forces attack targeting strategy generated.

THE AIR INTELLIGENCE TECHNOLOGICAL CHALLENGE

One of the principal technological challenges facing air intelligence is the historical problem of staying ahead of operational capabilities. In essence air intelligence must match the accuracy and timeliness of air power. Marshal Nikolai Ogarkov, former Soviet Chief of the General Staff and now Head of the Western High Command facing NATO, has

characterized the new high-tech conventional weapons being produced in the west as having the same characteristics as weapons of mass destruction, i.e., nuclear and chemical weapons.

Ogarkov is correct. A WWII heavy bomber group equipped with the accurate Norden Bomb Sight and B-17's capable of carrying increased bomb loads were able to destroy a critical industrial complex in WWII. Today one F-111 with precision guided munitions can destroy the most critical element within a critical industrial, military or logistics target set. In other words accuracies have improved by an order of magnitude, resulting in a significant increase in potential air power leathality. The pivotal question today, as it was in WWII, is "what's critical," and given the improved mobility of most potential target sets, "where is it?" Air intelligence in WWII failed to answer this question in Europe, until late in the war -- it didn't match the accuracy of the operations it was supporting. Based on the recent experiences in Korea, Vietnam, and in the forementioned very recent "field exercises" it is still behind the air power curve.

But technology also offers some promise of helping air intelligence get ahead of air power operations. As a recent Rand study said, we "... are on the brink of a significant breakthrough in real-time combat intelligence collection and dissemination."(4:10) The TR-1 (upgraded U-2) driven

Tactical Reconnaissance System, Joint Stars (JSTARS), Precision Location Strike System (PLSS), Assault Breaker and other high-tech collection and strike systems promise to provide a flood of near-real-time sensor information. They are today's tactical Pie Faces, Pied Pipers and Daisy Maes.

Unfortunately there is a growing body of opinion in the tactical operations community, with some support by high-tech advocates in the intelligence community (primarily the SIGINT community), that direct attacks on this unanalyzed intelligence sensor data is the wave of the future. In fact PLSS, JSTARS, and other like systems are predicated on exactly this concept. This approach, while certainly solving the intelligence timeliness problem, is likely to cause serious accuracy difficulties. It presupposes that every target is a center of gravity in and of itself, somewhat akin to the "bridge mentality" that gripped operational planners in Vietnam. This approach also ignores the demonstrated cover and deception capabilities of even the most primative of our potential enemies. This does not negate the growing sophistication and speed of the emerging high-tech sensors. Rather it implies that the air architecture must be restructured if the USAF hopes to fully capitalize on these new capabilities.

The challenge facing the air intelligence community is to turn this flood of rapid fire data into meaningful center of gravity targeting information for timely attack. The

high-tech advocates have an answer to this challenge in the form of potential new information processing technologies such as the Joint Tactical Information Distribution System (JTIDS) and the Joint Tactical Fusion Program (JTFP). The most optimistic of the technolgy true believers think that the use of artifical intelligence in these systems can replace human intelligence analysis. In fact the computer hardware to do human like thinking is almost available. The raw power and blazing speeds of tomorrow's super computers is, as a recent Time magazine article said, "beyond human comprehension."(5:54)

But as the Time article also points out "The paradox at the heart of today's computer science is that the most powerful computing machines are essentially dumb brutes..."(5:56) In other words the hardware revolution and the software revolution (software being the programs or brains of the computer) are at different stages of development. Without smart software JTFP and JTIDS are simply collections of machinery. Not surprisingly both programs are suffering huge cost overruns and delays in procurement because of chronic software problems.

Even if breakthroughs in software technology allow the development of artifical intelligence expert or knowlege based systems a major problem will remain. The problem is that there are very few, if any, people in air intelligence today who are "expert or knowledgable" enough to help the

software wizards produce programs that can think like an analyst or targeteer. The Army is doing its homework on the close battle with its intelligence preparation of the battlefield work. But as was pointed out earlier no one in air intelligence is doing comparable work for follow-on forces attack in the deep battle. Air intelligence must produce a cadre of smart analysts and targeteers who think and breathe intelligence preparation of the battlefield on the deep battle as part of their day to day jobs before artifical intelligence software for the JTFP can be developed.

In the meantime the sensor revolution is likely to be somewhat akin to the radar revolution of WWII. Radar made it possible to determine "something" was out there. But it took humans to characterize what that "something" was and what parts of it were most important to attack. The task facing air intelligence in the sensor and automation age will be similar but infinitely more complex.

The complexity results from the amount of high speed ambiguous information coming from a variety of media which must be dealt with. All of the various air intelligence collection and analytical disciplines will have to work as a synergistic team to determine the "something" thats out there. Once that is determined the targeteer working with the operational planner will have to determine what to attack when. This presupposes a hierarchy of tasks arranged in a

vertical processing continuum from (1) simple interpretation of a particular medium, such as PHOTINT, through (2) fusion of multiple sources of interpreted data, to (3) operational analysis of the fused product in an effort to characterize the developing battlefield situation, and finally to (4) determination of centers of gravity for immmediate and long range targeting in conjunction with operational planners. Implicit in this highly operational process is a singularity of command direction and constant interaction up and down the process to ensure all source, all discipline interaction. This all source, all discipline vertical intelligence command structure must be base lined with a coherent doctrine.

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CHAPTER VI -- AN AIR INTELLIGENCE DOCTRINE FOR THE FUTURE

It is well past time for air intelligence to translate it's experiences from WWII, Korea, Vietnam and recent field exercises into a coherent doctrine specifically aimed at supporting air power. This doctrine must be rooted in historical experience but also must take into account new technologies and theories as they become available. It must serve as a spring-board to action in terms of organizational architecture, personnel policy and training.

The remainder of this paper is intended to serve as a point of departure for development of such a doctrine. It provides historically validated key areas for consideration in future doctrine development. Hopefully it will spur an ongoing dialouge on the vital issue of designing an air intelligence doctrine specifically to support air power.

AIR INTELLIGENCE TO SUPPORT AIR POWER

How can air intelligence be tied more closely to air power? It has to start with a consideration of air power doctrine. Air Force Manual (AFM) 1-1, Basic Aerospace Doctrine of the United States Air Force is the Air Force's basic doctrinal bible. 1-1 makes it clear that air power is fundamentally offensive in nature. The ultimate goal of an Air Force being destruction of an enemy's center of gravity. Therefore it naturally follows that the highest goal of air

intelligence is to support the offensive nature of air power and define the center of gravity for the Air Force commander.

AFM 1-1 lists two primary tactical offensive missions: air interdiction (AI) and offensive counterair (OCA). Missions that are not primarily offensive in nature are considered enabling missions. That is, they are necessary to accomplishment of the basic offensive mission. Primary tactical enabling missions are; suppression of enemy air defenses (SEAD) and defensive counterair (DCA). Just as Air Force operational commander's have enabling missions, air intelligence also has enabling missions (functional collection, operational analysis, etc) which permit the principal intellectual task to occur.- - determination and targeting of the center of gravity. Air intelligence doctrine must coherently aim the entire intelligence process at accomplishment of this doctrinal goal.

Air intelligence doctrine must be written in the context of each of the primary air power missions listed in 1-1. Currently air intelligence doctrine, such as it is, is written primarily in terms of the intelligence production cycle rather than the air power operations it supports. This fragmented cycle must be expressed as a seamless process that ends and begins with operational actions. Further, it must clearly state the timeliness and accuracy requirements of air intelligence in terms of each of these missions.

It must get information to the combat forces in each

mission area at a speed that exceeds that of the forces engaged and with an accuracy that matches the accuracy of their delivery systems. Air intelligence that is produced on a target after it has already been bombed has no utility. Likewise it does air power no good to strike with head of a pin accuracy if air intelligence cannot provide decisive head of a pin targets. History verifies these assertions. The requirement for air intelligence timeliness is proven by the example of Isreali aircraft showing up to bomb non-existant Eygtian truck convoys. The air intelligence accuracy requirement is verified by the Army Air Force WWII experience of squandering valuable precision air power resources against target sets that were not vulnerable.to precision attack, such as aircraft plants. Positive historical experiences also verify the need for air intelligence to match the timeliness and accuracy of air power. Task Force Alpha in Southeast Asia proved capable of providing a near-real time all source fused intelligence product directly to strike planners. This made it possible for target information to be passed to strike crews, while they were in the air, for use in the highly time sensitive air interdiction campaign in Steel Tiger. The speed of the available air intelligence exceeded the ability of air power to put bombs on target with significant payoffs in terms of air power lethality. In WWII the ability of General McDonald's air intelligence organization to provide accurate intelligence on the German

oil center of gravity matched the inherent accuracy of air power in that era.

AIR INTELLIGENCE ARCHITECTURAL PRINCIPLES

1. THE ROLE OF THE SENIOR INTELLIGENCE OFFICER.

Just as it is an Air Force principle of war that the operational commander must have unity of command of all of his assets, including his enabling assets, it must become a principle that the Senior Intelligence Officer commands his enabling assets. This recognizes the indivisability of the intelligence process and it's increasingly operational nature. It is generally recognized that the senior theater air communications commander must control all air communications mechanisms and frequencies to maximize communications efficiency. Therefore it is logical that the Senior Intelligence Officer control all air intelligence mechanisms and media. Likewise just as the theater communications commander has a staff role on the air commander's staff so must the Senior Intelligence Officer play a vital role on the staff. In fact the Senior Intelligence Officer must be an active peacetime and wartime partner in the air commander's strategy formulation. In this regard he must work directly for the Air Component Commander in a theater. General McDonald, the Senior Intelligence Officer for General Carl Spaatz in the WWII proved the utility of this arrangement. As a result of their close

consultation and high level of mutual trust the German oil center of gravity was successfully attacked. The lesson was relearned in Korea when intelligence was moved out from under the control of operations and put under the direct control of the commander shortly after the war began.

2. **AIR INTELLIGENCE OPERATIONAL TEAMS.** The Senior Intelligence Oficer is responsible for high level staff strategy formulation. Therefore he must have subordinate operational teams that provide him with intelligence for strategy formulation at this level. But because of the rapid pace of air warfare these teams must also interact with operational strike planners near the execute level of operations in support of specific Air Force mission areas. For example the Senior Intelligence Officer's offensive counterair or air interdiction team may work directly with strike planners responsible for those missions. They could provide near-real-time data to the operational tasking authorities for diverts or strike modification within the context of the overall center of gravity strategy of the air component commander. In other words the air intelligence team is working the near term war and in the process is building a data base for long range strategy. The teams may be further divided along geographic lines in a large or highly complex theater such as NATO. But, in recognition of the unity of command principle, they must be capable and responsible for all of the functional steps necessary to

produce an entire product on a specific mission area.

Recall Carl Kaysen's description in Chapter II of the dysfunctional functionalist approach of WWII air intelligence. He prescribed a fix in what he called the "team concept" calling for intelligence teams to be established, consisting of all the necessary skills to achieve the total air intelligence mission. General McDonald also recognized the funtionalist problem and attempted to create a European Air Intelligence Command. Both men recognized the need to make air intelligence a highly operational process focused on both near term and long range mission support rather than the simple creation of intelligence for intelligence sake.

3. **VERTICAL NATURE OF AIR INTELLIGENCE.** Air intelligence teams, if they are to find the center of gravity within a specific mission area, must be organized in a vertical hierarchy rather than as a series of independent horizontal organizations. This vertical organization must contain all of the tools necessary to create a focused air intelligence product. It must be organized in a hierarchical fashion with the lower order skills, such as photo interpretation, serving the requirements of the higher level skills such as operational analysis who in turn would serve the most demanding skill; targeting analysis and development (which must be accomplished in conjunction with operational commanders). As mentioned above all such air intelligence

teams in a theater must be subordinated to the air component commander's Senior Intelligence Officer to insure this vertical continuum provides an all source product.

Todays horizontal structure whereby collector, analyst and targeteer are at the same organizational level perpetuates the "source focused" approach that Lieutenant Colonel Blackbird and Lieutenant Colonel Enney mentioned in Vietnam and Karl Kaysen talked about in WWII. All air intelligence personnel must be mission focused by the very nature of their organization.

The horizontal approach also diffuses responsibility for providing focused intelligence. No one in air intelligence can be held responsible for specifically not providing information to the air interdiction campaign, for example, since no one is uniquely responsible for that campaign or more importantly commands all of the tools necessary to accomplish the mission. Historically the collector is rewarded for "interpreting X miles of film" or "analyzing X number of signals" rather than providing a product that has direct operational relevance. Until institutional rewards that spring from an operationally focused organizational team are created this "intelligence for intelligence" sake mentality will persist.

4. **AIR INTELLIGENCE ORGANIZATIONS ARE KNOWLEDGE BASED.** Air intelligence is different than any other Air Force organization. It is similar in some respects to a

radar organization since it is responsible for processing highly abstract real-time data and characterizing the nature and relevance of that data. But in reality it must process much more data, containing a higher degree of ambiguity and from a wider variety of sources than a radar site. In this respect it is similar to an Air Force research organization in that it does deal intellectually with vast amounts of data from a wide variety of sources. But it is also much different than a research organization in that it has to rapidly process the data and focus it against specific requirements. Air intelligence can best be characterized as what Peter Drucker calls a "knowledge organization."(1:450)

As Drucker explains, knowledge organizations contain inherent paradoxes. This is because they contain two axes: "a functional one managing the man and his knowledge; another one the team, managing work and task. Seen one way, this undermines the functional principle and destroys it. Seen another way, it saves the functional principle and makes it fully effective."(1:570) It requires, as Drucker, points out, strong professional leadership.

In the world of air intelligence this means a leader capable of dealing with a variety of technical functional skills, maximizing the potential of each within the context of a holistic team approach. This leader must not only understand the various functional outputs but must lead a team that can create a new holistic product out of the many

disciplines and media that he leads. Finally he must insure his entire team is cognizant of the overridding need to aim this product at a specific operational objective -- definition of an attackable center of gravity. Once he finds this center of gravity he must sell it to his operational counterpart. Complicating this process is the near-real-time nature of the task. air intelligence is different and it's leaders must be different; capable of walking in several worlds at once, attacking both operational and intellectual tasks, and doing it all at a break-neck pace. Only a few air intelligence leaders have even recognized this inherent paradox -- men such as McDonald, Triantafellu, Enney, Peroots -- much less caused substantive architectural changes to accomodate the paradox.

PERSONNEL AND TRAINING PRINCIPLES

1. **HIERARCHY OF SKILLS.** Leaders must be groomed within the context of a skill ladder that goes from simple to complex. The rough equivalent of the operational growth pattern of pilot, flight lead, various command and staff positions at wing and higher headquarters eventually leading to wing command and general officer for the very best of the operators.

A similar air intelligence officer progression ladder might start with supervision of a collection interpretation team subunit within a particular mission area. For example

supervision of airmen and NCO photo interpreters or SIGINT traffic analysts on the offensive counterair team. If the air intelligence leader is successful at this task next he/she could move on to supervision of a more highly skilled airmen/NCO team charged with simple fusion of all source intelligence data within a mission area. A third step in the progression ladder would be supervision of a more highly skilled Senior NCO/officer team performing operational analysis on the fused product. If the operational analysis was in support of the air interdiction mission area it would consist of lines of communication studies, second echelon order of battle determination, etc. The fourth step would be targeting analysis within the context of a specific mission area, say on a suppression of enemy air defenses team, with the end goal of selecting mission area centers of gravity. Implicit in this analysis is the requirement to perform high order analysis of future courses of enemy action and likely enemy reactions to Air Force air strikes. If an officer has the intellectual equipment to perform this task then he/she could be upgraded further to supervision of such an effort. As a supervisor of the mission area targeting effort they would be responsible for interacting with operational planners in doing strike planning and strategizing within the confines of the mission area. The fifth step in the process would be broad campaign targeting analysis of all of the mission areas to select specific campaign centers of gravity.

The very best officers would move on to supervision of this effort and interaction with air component commanders on broad campign strategy. This would likely be a general officer position.

An air intelligence officer's trip up the hierarchical ladder could be punctuated by intelligence staff or career broadening tours. An advantage of the hierarchical concept is a set of measurable upgrade standards for moving from one rung of the ladder to the next. The upgrade process used in Air Force operations could serve as a model. This upgrade approach is in concert with the increasingly operational nature of the air intelligence process.

2. **THE NEED FOR FUSION EDUCATION.** If officers hope to lead in this operational enviornment and move up the hierarchical ladder they will have to master the intricacies of the many intelligence functional areas and Air Force mission areas. In affect they must become "fusionest." To aid in this effort periodic training in the art of fusion or holistic air intelligence will prove beneficial.

In reality this will probably prove to be more education than training, since it will likely consist of teaching understanding and "approach" rather than rote dogma. The teaching technique might consist of computer assisted interactive case studies of potential real world intelligence situations. Such a course might be substituted for the current Intelligence Staff Officer's Course mentioned in

Chapter III.

The course goal would be to form officers capable of seeing the world with a new geometry -- holistically. In essence to give them McDonald's or Triantafellu's world view, updated. Most importantly it would provide them with the tools to lead those that work for them to operate in the context of the this world view. The ultimate goal would be to provide them with the ability to explain, in clear terms, the enhanced holistic products they are producing to operational commanders. Thus giving air intelligence leaders the ability to "sell" center of gravity information. Air intelligence must do a better job than it has in the past of providing a complete and rigorously developed product. To accomplish this it must develop it's people through training and hierarchical screening.

3. **NEED FOR CONTINUITY.** Air intelligence must also give it's future leaders sufficient time to develop their basic technical skills. The great Air Force operational leaders -- Spaatz, LeMay, Brown -- were well grounded in a technical operational skill area such as strategic bombardment. This base of technical expertise was a necessary springboard to their maturation as leaders. They were given the time to become functional technical experts before they rose to leadership of a wide variety of skill areas. Likewise air intelligence personnel must be given the time to develop basic technical skills in a functional area

prior to being moved to leadership positions. While air intelligence tends to do this with its airmen who grow into skilled noncommisioned officers it generally fails to do so with its officers. Therefore they don't have a basic foundation upon which to build.

The "fusionist" would rise out of the basic technical skill areas; photo intelligence, human intelligence, signals intelligence, technical intelligence, through operational intelligence positions and finally to fusion positions. Not only would he be the highest order thinker in the vertical heirarchy but he would also serve as the top level supervisor of the team in the area in which he is working.

THE NEED FOR DOCTRINE

There are hopeful signs that the Air Force has recognized the need for many of the doctrinal changes suggested here. Architecturally, for example, at the Strategic Air Command the 544th Strategic Intelligence Wing is taking steps to "verticalize" it's organization to meet the new demands of the Soviet strategic mobile threat. In the United States Air Forces in Europe the DCS for Intelligence recently created the 7455th Tactical Intelligence Wing in an attempt "operationalize" intelligence and therefore meet the requirements of deep follow-on forces attack.

New air intelligence training procedures are also being

instituted which promise to dramatically improve an officer's preparation to serve the needs of air power. Reportedly new scenario driven, exercise based practical training is being devised. Three programs known as SENTINEL ASPEN, SENTINEL BRIGHT and SENTINEL CONCHO are being devised to upgrade the entire training process.

These architectural and training steps are indeed promising but they are unlikely to substantially change USAF Air Intelligence unless they are underwritten with a historically validated air intelligence doctrine. The very process of arriving at a new doctrine can have a salutory effect on the air intelligence community. It can cause long standing problems to be addressed and resolved and a consensus to be developed. The effort will require extraordinary leadership skills, particularly on the part of leaders in the functional organizations which will be most profoundly effected by a coherent, historically valid doctrine. Building a consensus for such a major change will fall on the shoulders of the Air Force operational leaders who will be, and have been, most significantly effected by air intelligence products. They, in concert with the most far sighted of air intelligence leaders - todays McDonalds - must review the hard lessons of the past and take decisive steps for change. But this process has to begin with doctrine.

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CHAPTER VII - CONCLUSION

Air power doctrinal theorists from Douhet on have understood the fundamental requirement to identify an enemy's center of gravity as the first step in air warfare. Yet the American Air Force's, in every war they have fought, have failed to successfully take this vital first step. As a consequence they have repeatedly squandered valuable air power resources. It is very likely that in the next air war the United States Air Force fights it will make this same error again, unless it creates a viable air intelligence apparatus to perform the crucial task of tracing the enemy's center of gravity to a decisive point.

The first step the Air Force must take towards this objective is creation of a doctrine which relates air intelligence to air power. Once this is accomplished then a suitable organizational architecture and coherent personnel and training policies can be established.

This paper has chronicled the history of air intelligence from it's birth in World War I, through it's high water mark during the oil campaign against Germany in World War II, to the dark days of Korea and Vietnam. The same sad lessons have been repeated in each conflict -- a fragmented architecture, bandaid organizational fixes, roller coaster personnel growth, and an unprepared training apparatus. Strong leaders like General McDonald in World War

II and General Triantafellu in Vietnam had to make do with what they had. Young officers like Carl Kaysen, Jim Enney and David Blackbird each saw the perils of a source focused intelligence architecture and provided insights on how to fix the problem. Its up to todays generation of operational and intelligence leaders to learn from the hard lessons of their predecessors and fix the long standing air intelligence problems before the next air war starts.